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EDITORIAL NOTES.

A WORD EXPLANATORY.

At the Coronado meeting, one or two members of the Society stated to the editor that some members—the number or proportion seemed to be but vaguely known—were restless under the assessment of $3 which is paid by every county society to the State Society for each of its members. It was stated that a number of members could not see what good or benefit was derived from the State Society membership; and that, if they could, they would belong only to the county society. There were also some other things said, all of which the editor took unto himself and mentally digested. As a result, when the House of Delegates met and reports were being presented by the officers, the editor took the occasion to present, verbally, a resume of his connection with the Society and his views on the subject of the proper work of the Society. After the session he was requested, by a large number of delegates, to place the remarks in writing and publish them in the JOURNAL. It is for this reason that the following very personal editorial has been written and here appears. And for the reason that it is so personal, something distasteful to the editor himself, this word of explanation has been made.

Are Medical Organization and the State Society Worth While?

I ask your indulgence, for a few moments, that I may present to you some facts, partly historical and partly statements of altruistic purposes; but I believe that they are of sufficient importance to require your attention.

In 1902, at the request of the council, I assumed the editorial control of your JOURNAL—in fact, started it. This was not hastily done but only after due consideration and careful thought; nor was it done with any misunderstanding existing between myself and the Council. I had for some time been studying the awful proprietary degradation to which our profession had been brought, and it seemed to me that a change might be brought about if, even in one state, the medical profession could be brought together and shown just a little of the actual condition. It was well known, at least to the then members of the Council, that I proposed, as editor, to use the full strength of the JOURNAL for this purpose and to further the ends of medical organization and the medical control of public health matters.

As you all know, conditions in the medical profession in this state were, at that time, chaotic, to say the least. The State Society had never numbered more than 350 members and very few counties in the state could boast a county medical society. War had reigned in our profession constantly for much more than a quarter of a century. Of health laws there were, practically, none; our State Board of Health could only exercise an advisory activity which it did in a most unsavory manner. The Council decided to undertake the better organization of the medical profession in the state and they asked me to conduct the work. Before the end of 1903 a considerable number of county medical societies had been organized, and during the following year the work was continued. In some sections where meetings were called to organize county medical societies, it was necessary for the Councillors present to introduce to each other medical gentlemen who had been living in the same town for years, but were not on speaking terms.

The work proceeded; at times, most discouragingly; but there was enough of encouragement to warrant keeping it up and enough to make me believe that much betterment might come about in the course of years. Again I thought the whole matter over carefully. I realized that the Society could not ever, no matter how it might grow, nor how its JOURNAL might prosper, pay me an income in any way approaching that which I had earned in practice and could earn again, either in the same way or if my time were wholly devoted to other things. But it also was evident that the Society would be in a position to pay enough to provide a sufficient living and cover my modest wants; it was also evident that some of the objects

for which we should stand and for which we should fight, could be achieved.

Was it worth while to give the best years of a man's life to this work, or not? Did it appear that the results would be commensurate with the effort? To me it did so appear. The dawn of a better day for decent materia medica products more honestly and more truthfully put before our profession, was already breaking. In many counties large and influential county medical societies had come into existence. The influence of the profession was being felt in the legislature. It seemed worth while—to me.

But does it seem worth while to you? Does it seem worth while to strive for a live, active, studious, respect-compelling medical society in each county; which will be, de facto if not de jure, the board of health of that county? To bring about a condition of public instruction in public health matters which will insure respect for our profession in the public mind and obedience to our mandates in public health matters? To bring an end to those bitter and disgraceful fights among medical men which have been a lasting disgrace to our profession and have brought us into ridicule in the public mind and the public press? To promote peace and harmony in our ranks and a common purpose to be better physicians, better citizens, more watchful for the public good, more strenuous for the protection of life and health—particularly of the children of our state? To see to it that the men, the voters of our state will be so educated to the fact that our profession is striving to *prevent disease,* and that it is a friendly, studious unit, knowing full well what is best for the public protection, that no legislator will dare go to Sacramento and there cast his vote against any measure intended for the public health and supported by the united medical profession? To teach the public that tuberculosis is a preventable disease and need not kill its enormous quota; to teach them that typhoid is a filth disease and that he who has it has taken into his stomach, through his mouth, the feces or the urine of some other human being?

Is it worth while, do you think, to throw off the disgraceful yoke of the proprietary medicine manufacturer and to demand that he deal honestly and truthfully with us and not cause us to put, we know not what, into our patients or to sacrifice their lives through his lies and to his gain? Is it worth while to make of our societies educational centers so that each physician may profit from them and so that the public may come to know that the medical society exists for the purpose of the self-betterment, the self-government, the self-education of its members and consequently is of that much direct benefit to the public—and that the medical man who does not belong to, and take an active part in, his society's work, is by that much the loser and less well equipped physician?

Is it worth while, speaking from a purely material standpoint, to show to the public that it is an expensive thing for a physician to keep well equipped, mentally and instrumentally, and that he who pays cheap fees must necessarily get cheap and poor service? To show them that the bill for contract medical service, or lodge service, is a mighty heavy one, in the long run, and that *it is the sick man who pays it?* To instill into the public mind a knowledge of the fact that decent fees must be paid in order to properly support physicians and thus ensure their maintaining a proper standard of education and up-to-dateness? To force insurance companies to a realization of the fact that they must pay decently for professional services; that medical men are not merely corporation pups?

Is the JOURNAL of your society worth while? Is it of any value to you? Does it in any way bring you into touch with other parts of the state, with what men in other counties are doing, with what is going on in the work of your fellow physicians elsewhere? Does it ever offer you anything of value to yourself? If not, it is useless; let us stop it.

The constitution of our state society says that the society exists for certain purposes: "To federate and bring together into one compact organization the entire medical profession of the state * * * to extend medical knowledge and advance medical science; * * * to elevate the standard of medical education and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition, and to enlighten and direct public opinion in regard to the problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life." Are these things worth while or are they not? That is the question which squarely confronts us. Those are the purposes for which the Society was organized; for which it exists, if so be it exists for anything. Are they worth while?

If it is not worth while to do these things—all of them, or any of them or so many of them as we may be able to do, then in God's name, let us find it out at once! If it is not worth while to strive for all this betterment, then let us cut off a lot of unnecessary work and expense. Reduce assessments to a minimum; stop the JOURNAL; close up the office; abandon all effort to educate the public; let the legislature ignore, again and forever, the welfare of the people; let chaos reign again as it reigned before—and let me devote my time and attention to other, and, speaking financially, more profitable things.

But if these things are worth while—and it is up to the members of the medical profession to say whether or not they are to be considered as worth working for—as worth while—then let us get busy and each one do his best and his hardest to

bring them about. Work can not be done without the expenditure of fuel; and fuel costs money. Let every delegate go home to his county society and tell them exactly what the state Society stands for; what the altruistic aims and desires of its council and its secretary are; what we are striving to accomplish and with how little available money. Explain to them, from the financial statements which are in your hands, just where the income of the Society comes from and just where it goes. If it is the opinion of the members of county societies that all this effort, this work, this expense is useless and needless and foolish, then let us find it out and stop it; otherwise, let us go ahead with it as actively as possible.

Most assuredly, unless there is a desire for the work to be done, unless there is active co-operation all over the state; unless there is a real and genuine feeling that these things are worth the doing and that the heart of the medical profession is in sympathy with them—actual and active, not merely passive—unless every man stands ready and willing to do his part to help make some of these things come true, why I certainly have no desire to waste any more of my time on work that is undesirable. Better far that we stop at once, rather than to go further with what is of no interest and no value to those for whom it is intended. But let us have no misunderstandings; let us get as far away from hypocrisy as the good Lord will let us; let us be honest with ourselves and if we undertake to do these things, let us do them as well and as thoroughly as we can.

Peace, harmony, respect and that honorable repute which should be ours in every community, can not be secured with a club nor through strife. They may be had only by industry and painstaking work. Let every community in our state come to realize that its medical society is one of the most valuable assets in its position; that its medical men there meet for study to the end that their services may be more valuable to the public; that the only "medical trust" is the trust of the people's health which we took into our hands when we assumed the duties and the responsibilities of the physician; that the altruistic work of our profession in dealing with the problems of preventive medicine is entirely and essentially different from the work of any other profession or calling and that the people alone benefit from our energies; let these things be done and the people so taught and we shall see an end to the injurious practices of contract and lodge work and an end to the scoffing against our profession which is so common in the lay press.

It is for these things that the Society is supposed to exist; it is to secure the accomplishment of these things that I have given my time and my energies; but no one man can do much alone; every member of every county society in the state must do his part, and if every one *will* so do his duty, we shall soon see results accomplished which, a few years ago, we would have thought utterly impossible of attainment. Is it worth while?

UPON THE ANATOMY OF THE THYROID AND PARATHYROID.*

By ALLEN F. GILLIHAN, M. D., Berkeley.

Upon removing the muscles of the anterior part of the neck, viz., sterno-mastoid, sterno-hyoid, omo-hyoid and sterno-thyroid, we find lying directly upon or rather around the upper end of the trachea, a very vascular, irregular-shaped, gland-like structure; the thyroid body. It is made up of lateral lobes connected by the isthmus. Each lobe is of an irregular, pyramidal form of three surfaces. The anterior or antero-lateral surface of each lobe is in contact with the sterno-thyroid, sterno-hyoid and omo-hyoid muscles; the internal or mesial surface is in contact with the trachea, the recurrent laryngeal nerve and the esophagus; the posterior or postero-lateral surface is in contact with the cartoid sheath containing the great vessels and nerves of the neck, the scaleni and longus colli muscles and the pre-vertebral fascia.

The whole gland weighs from thirty to sixty grams. Each lobe is about five centimeters in length and from two to three centimeters in breadth, the right being usually the larger. The isthmus is about one centimeter in length and in breadth; there is occasionally seen a single pyramidal lobe arising from the isthmus or from the adjacent border of either lobe which may extend upwards in front of the trachea, sometimes as high as the pomum Adami.

The exact location of the gland varies; the bases of the lobes are usually situated at about the level of the fifth or sixth tracheal ring, and the apices lie by the sides of the thyroid cartilage. The isthmus usually lies upon the second and third tracheal rings. It is important to remember that these positions may vary, the isthmus possibly being higher or lower, or even in some cases of probably defective development, entirely absent.

The thyroid is one of the most vascular organs of the body, being supplied in all cases by four distinct arteries, and in some cases by five. Each lobe is provided with a superior and an inferior thyroid artery; the superior thyroid artery is the first branch given off by the external carotid, it usually enters the front surface of the apex at each lobe; the inferior thyroid artery is from the thyroid axis—a branch of the sub-clavian—this usually enters the under surface of the base. Besides these there is sometimes a thyroidea ima, a branch from the innominate or arch of the aorta that ascends directly in front of the trachea to the isthmus. The superior and inferior thyroid arteries subdivide into many branches which ramify over the surface of the lobe before penetrating the capsule. In nearly every case very free anastamosis occurs between either the inferior and superior of one side, or between the inferior thyroid arteries of each lobe by way of the isthmus, rarely between the superior thyroid arteries.

The veins are large and numerous. After forming a plexus upon the surface, they unite to form the superior, middle and inferior thyroid veins. The

* Read at the Thirty-eighth Annual Meeting of the State Society, Coronado, April, 1908.

first two, superior and middle, cross the carotid on the way to the internal jugular; the inferior thyroid veins are important, they descend upon the trachea, communicating freely with each other and terminating the left broncho cephalic vein.

In performing tracheotomy it is important to remember the large size of these veins, the possible existence of a thyroidea ima, and possible variation in position of the isthmus.

Histologically, the thyroid consists of a mass of short branched glandular tubules or follicles, supported by a dense fibrous stroma, and surrounded by a thin but firm capsule.

The follicles are ovoid saccules or short branched tubules formed by a single layer of cuboidal epithelium mounted on a basement membrane. These follicles vary greatly in diameter; in some there is scarcely any lumen, in others the lumen is so large as to be almost cystic. The epithelium is typically simple cuboidal, each cell containing a single spheroidal nucleus in a granular and decidedly acidophile cytoplasm. In all those follicles that possess an appreciable lumen, a homogeneous, eosin-staining material is found, called colloid. This colloid is also found in some of tubular epithelial cells, probably indicating a stage of secretory activity. There is no duct to the thyroid; but, possibly, the follicular contents finds its way into the general circulation through the intercellular canalicul and the lymphatic vessels, colloid material having been repeatedly demonstrated in these passages.

Although many writers, previous to 1880, had described lymph nodes, accessory thyroids, or other similar bodies in the regions of the thyroid, it remained for Sanstrom to demonstrate beyond doubt that there were constantly present certain small, epithelial, glandular organs in this region which he designated *glandulae parathyroidea.* It is very probable that there are in man four parathyroid glands, two on each side; however, owing to variation both in their size and position, it is quite possible for one or more of them to escape detection, or again occasionally there may be a union between two of the glands so that they appear as one mass.

In size they may vary from three to fifteen mm. in length. The average as given by Berkeley is about 6x4x2 mm. They are, in shape, a round or oval flattened plate.

The color has been described as a brownish red or reddish yellow. The latter from the presence of fat, which is most noticeable in the aged.

The location of these small bodies is not always constant; they are usually found in relation with the posterior margin of the lateral lobes of the thyroid. They may be found as high as the hyoid bone or as low as the thymus. In the words of Welsh: the superior parathyroid of each side is much more constant in position and much more easily found than the inferior gland. It may as a rule be said to lie on the posterior wall of the esophagus or pharynx, at the level of the lower edge of the cricoid cartilage, immediately internal to the posterior margin of the lateral thyroid lobe, and in front of the prevertebral fascia. The two inferior parathyroids are more varied in their location; however, it may be safe to say they will be found usually within one centimeter of the lower borders of the lateral thyroid lobes, usually inferior to the branches of the inferior thyroid artery that pass to the posterior surface. Geis says, "the inferior parathyroids are more difficult to find for the following reasons: First, they are not in so close relation to the posterior thyroid capsule; second, they are often imbedded in loose fat just below the gland; third, their smaller size."

Vascular supply.—Evans, in his work with Halsted, has demonstrated the following facts in regard to the blood supply: Each parathyroid is always supplied by a definite parathyroid artery. Second, these parathyroid arteries, superior and inferior, usually arise from the inferior thyroid and superior thyroid vessels.

The minute anatomy of the parathyroids characterizes them as being entirely different from the thyroid in structure.

Welsh describes two distinct types of cells: Type one, the princial cell—most numerous—ovoid element with a clear cytoplasm—a distinct cell membrane—a large spherical nucleus with an irregular distribution of the chromatic. Type two, acidophile cell—less numerous—of similar shape—with small spherical nucleus—very rich in chromatic and a granular acidophile cytoplasm. The distribution of these cells is subject to variation; they may form a solid mass of cells with capillaries here and there, larger vessels running in the coarser trabeuclæ of fibrous stroma. Sometimes we find the epithelial cells arranged in small alveoular groups or branching columns, surrounded by a network of capillaries. And occasionally the epithelial cells surround a central lumen in which are small masses of an acidophile substance resembling colloid.

Richardson, however, states that material to be retrograde or degenerative and not a higher stage of glanular development. Although these three types of distribution have been noted, it is most common to find a combination of all these present in the individual gland.

MEDICAL TREATMENT OF GOITRE.*

By DUDLEY FULTON, M. D., Los Angeles.

The subject-matter of this paper will be devoted largely to the medical treatment of Graves' disease, for the reason that but little may be expected from medical treatment in the other forms of goitre.

Thompson, in writing of Graves' disease recently, mentioned the fact that there are in existence some twenty-five hundred books, treatises and articles on exophthalmic goitre; but all the experimental research and clinical observation to which this voluminous literature testifies have served only to illustrate the manifold uncertainties connected with the subject. The fact that nearly every known therapeutic measure, both internal and external, has been used in the treatment—many of these having been

* Read at the Thirty-eighth Annual Meeting of the State Society, Coronado, April, 1908.

hailed as specifics—gives further evidence of the truth, that like other affairs of mankind, so, concerning the real nature of the affection known as exophthalmic goitre, theories have been easier born than facts.

Thus Tinker (*American Journal of Medical Sciences,* August, 1907) in a semi-serious vein, states that, "One observer insists upon the importance of directing treatment to the circulatory organs, or perhaps to the heart alone; another to the sympathetic nervous system, or to some other part of the general nervous system; another to the intestinal tract; another to the thyroid glands themselves; another uses strong electrical currents and another uses weak ones. Serum has been prepared from pigs and calves whose thyroids were previously removed, and milk of thyroid-ectomized she-goats has been employed, the blood of patients suffering from myxedema has been injected; guinea pigs, rabbits, roosters and geese have been experimented on, with more or less enthusiastic reports of results obtained. While the internists have been treating almost every organ in the body—from the intestinal canal to the thyroid itself—with all kinds of drugs, serums and extracts made from animals and men, dead and alive, applied locally or taken internally, a few surgeons have been excising part of the thyroid gland itself with brilliant results, etc., etc."

Such an arraignment of all non-operative treatment of Graves' is similar to Mark Twain's "premature obituary notice, which, on hearing of it, he declared to be 'grossly exaggerated.'" It suggests, however, the questions, "Is there any medical treatment?" "When shall we adopt it?" and "What shall we expect from it?"

It should be stated from the outset that the percentage of cures is much smaller by medical than by surgical treatment. It does not follow, however, that surgery is always indicated in either simple or exophthalmic goitre.

It should be remembered that in a large majority of cases the tendency of Graves' disease is toward recovery; that in many instances the disease disappears without treatment; and that medical measures, when properly applied, relieve some of the most distressing symptoms, at a time when these offer contra-indication to operation, to such an extent that surgical treatment may be safely undergone, which, in itself, proves that medical measures, when properly applied, are far from being void of beneficial results.

It will be impossible, in discussing the medical treatment of this disease, to mention more than the therapeutic principles which clinical experience have proven most beneficial. The general hygienic, dietetic, medicinal, electricity and the use of sera should be discussed.

One of the most important therapeutic indications in the treatment of Graves' disease is rest; rest, physical and mental. The dosage should be modified to suit each individual case. In one instance, the patient should have the absolute rest-cure; in another case, two or three hours' rest in the middle of the day, with long sleeping-hours at night, will suffice. The instance is rare in which improvement does not follow the proper application of this therapeutic measure, as is evidenced by lowering of the pulse-rate and the reduction of many of the nervous manifestations of the disease. Only recently, in exophthalmic goitre, tachycardia of 149 was reduced to 95 within five or six weeks by physical rest, in conjunction with the general hygienic management of the case.

Balneological.—In regard to balneological therapy, one can not generalize, some cases doing better at the seashore, others at mountain ranges at moderate altitudes.

Dietetic.—The diet in exophthalmic goitre is very important, and should be governed by the following two principles: First, very large amounts of nitrogen are required to maintain an equilibrium during some stages of the disease, so that from two to three times the normal number of calories per day is demanded. Second, experience shows that intestinal toxemias play a very prominent role in aggravating the general toxemia resulting from perversions of the thyroid gland. It is for this reason that these patients do better on a vegetarian than on a heavy meat diet. In the average case, milk preparations best represent the staple article of diet. Careful attention should be given to the bowels, constipation being actively combated, and the other eliminatory functions of the body maintained.

Under rest, medicinal preparations as indicated and the maintenance of the nutrition, many incipient cases of Graves' disease are cured, and in the advanced cases the most aggravating symptoms relieved.

Drugs.—The use of drugs in Graves' disease is purely symptomatic. There is no specific. The various cardiac sedatives and tonics have been used with varying success, depending upon their selection in each individual case and the skill with which they are administered; some physicians getting better results with cardiac tonics, others with the belladonna preparations, and still others advising opium for the relief of the circulatory disturbances, etc. The same variances in opinions exist concerning the general medication, the use of arsenic, potassium iodide, phosphorus, the salycylates, and the medicinal agents directed toward the improvement of the nerve-muscular phenomena of the disease, etc. All have been tried, exploited, rejected, and tried again; none are specific.

Electro-therapy.—The faradic, galvanic, sinusoidal and static electrical currents probably belong to the realm of suggestive therapeutics, and the same confliction as to their clinical value exists as in the use of medicinal preparations, perhaps for the reason that, as Moebius says, in the management of these cases, anything is of value provided only the patient is led to think that it is.

X-Rays.—It was the hope that the use of Roentgen rays would produce a lesion of the glandular epithelium of the thyroid which would give rise to qualita-

tive or quantitative changes in the secretion of this gland which would modify the course of the disease, and many favorable reports have been published advocating its use. One of the most recent reports on this form of treatment which we have seen is that of Pfeifer, based upon a study of fifty-one cases, together with the histological findings and the results of experimental research. His conclusions were that the Roentgen treatment of exophthalmic goitre is ineffectual, as a rule, and should not supplant better tried methods.

Serum treatment.—Some eight or ten forms of sera and preparations from the thyroid have been used with greater or lesser success, but so far as we are aware, the end-results of such therapy have not done more than to suggest that these too must be relegated to the large class of therapeutic measures which, at the time of their introductions, were hailed as specific.

The last preparation of this category—the serum prepared by Rogers and Beebe—will, it is hoped, live up to the promises which its use thus far has given.

The method of its preparation is very briefly as follows: Two large goitres recently obtained from patients suffering from Graves' disease furnished the necessary material. These were ground to a pulp, and the nucleo proteids and globulins—including the thyroid globulin, which is supposed to be the active secretion of the thyroid gland—were precipitated. At different times the precipitate was injected into rabbits, and after five or six weeks the animals were bled to death from the carotid artery. Rogers treated ten cases with the serum thus obtained with extremely satisfactory results. Typical cases were cured. In a later paper he reports the results obtained in ninety cases. Twenty-five per cent were cured of all symptoms; 59 per cent were more or less improved; 12 per cent at that time were unimproved, and 4 per cent died.

Barker, in a symposium on Graves' disease held at the last meeting of the American Medical Association, closed his paper with these words:

"At the present time, there is fair prospect that the treatment of the disease may again be transferred from the surgeon to the physician. The remarkable results obtained in a number of cases by Rogers and Beebe through the use of their curative serum gives us good reason to hope that a method will ultimately be perfected which will permit the internist to accomplish with his needle that which he now asks the surgeon to do with a knife."

Until sufficient clinical proof of the value of this treatment is submitted, it would appear that it is the duty of the internist to give his patients who are not improving under medical treatment the advantage of the truly brilliant curative results obtained by surgery. Both surgeon and internist advise medicinal treatment; this failing, surgery is indicated. It is unfortunate that the majority of these cases have not reached the surgeons at a time when operation is attended with low mortality. Too often the fault lies with the internist that only the hopeless cases, and those that have grown steadily worse under prolonged medical treatment, are operated on at a time when the attending mortality must necessarily be high. The dictum to try medical treatment first, and if this fails turn the patient over to the surgeon, is too frequently productive of danger to the patient, for too great a delay subjects the patient to the same dangers of life-destroying sequalæ and complications in exophthalmic goitre as in diseases of the gall-bladder, peptic ulcer, and other conditions, the treatment of which is partly medical and partly surgical.

THE SURGICAL TREATMENT OF GOITRE.*

By WALLACE I. TERRY, M. D., San Francisco.

The surgical treatment of goitre did not assume any degree of importance in the United States until five years ago, when, owing largely to the communications of Theodor Kocher and his son, Albert, as to their results in the treatment of over two thousand cases, the medical profession of this country began to realize how much could be done surgically for the relief of many conditions dependent upon the thyroid gland. The previous mortality attending such operations, which had deterred physicians from recommending surgical relief, was shown to be referable in large measure to technical errors, but now that the surgeons have improved their methods they are attaining results comparable with those in countries where goitre is endemic. The Pacific Coast offers a fair field in this line of work, since goitre is somewhat common in a number of localities, as shown particularly by the investigations of Moffitt.[1]

Surgical treatment of a goitre may be demanded—1st, on account of its size; 2d, because of pressure symptoms affecting the trachea, larynx, esophagus or other important structures in the neck or upper portion of the thorax; 3d, when the growth is rapid, giving rise to the suspicion of malignancy; 4th, because of infection of the goitre; 5th, when Basedow symptoms are present.

Large-sized goitres may exist without producing any symptoms, but more often either by traction or pressure on the neighboring tissues they give rise to discomfort and cosmetically they are a disfigurement. One must also consider that malignant changes may easily occur in large goitres and render operation imperative.

Pressure symptoms are often noted in comparatively small goitres, especially where the tumor is at or near the median line. In some cases the gland masses grow directly backward and inward and press on the esophagus and recurrent laryngeal nerve, producing characteristic symptoms. Often, however, the trachea is flattened in one or another direction and respiration is interfered with. Difficulty in swallowing is quite commonly associated with dyspnea, for the esophageal walls are soft and yield to pressure transmitted through the harder trachea.

* To have been read at the Thirty-eighth Annual Meeting of the State Society, Coronado, April, 1908.

Rapid growth of a goitre may be due to a simple hyperplasia, but often it is in the first indication of a carcinomatous or sarcomatous degeneration. It is advisable in such cases to administer iodides for ten days to two weeks and if the growth be benign a rapid subsidence will be noted. It is to be remembered, however, that iodides will sometimes produce Basedow-like symptoms in the presence of goitre such as loss of weight, palpitation, tremors, sweating and other nervous manifestations, hence the iodides should be discontinued when such symptoms appear.

Infection of a goitre is more apt to occur than infection of a normal thyroid, but nevertheless, in goitrous districts, it is an uncommon incident. Kocher, for instance, had but eight cases of strumitis in his last reported one thousand operative cases of goitre.[2] It is, however, probable that infections such as influenza and tonsillitis have some casual relationship with the growth of many goitres without leading to suppuration. A history of some such general or local infection immediately preceding the development of a goitre is obtainable in many cases.

Basedow's or Graves' disease is now recognized by the great majority of observers as being dependent upon the thyroid gland. The pathological researches of McCallum[3] and others have shown a marked increase of the active epithelium lining the acini, while many clinical reports have demonstrated that removal of the thyroid is followed by a cure or marked improvement in the great majority of Basedow cases. Moreover Kocher[2] states that he has never seen a Basedow case without enlargement of the thyroid.

The distinction is made by many of primary and secondary forms of exophthalmic goitre, the primary being those in which the development of Basedow symptoms is coincident with the growth of the goitre, while in the secondary form Basedow symptoms are engrafting upon an existing goitre. Personally, I can not see much reason for this distinction, for the following reasons: 1st, while the goitres may differ pathologically in some respects, so far as areas of highly active epithelial cells are concerned they are alike; 2d, from a symptomatic and therapeutic standpoint they are alike; 3d, we are dependent for our classification of the two forms largely upon the patient's previous history, and experience has taught us that such histories can not always be relied upon, especially when it comes to the observation of deeply situated masses in the neck. Many patients with marked Basedow's disease do not know that they have any unusual neck condition until it is brought to their attention by the physician, and to designate such cases with only slight or moderate enlargement of the thyroid as primary is not, to my mind, necessarily justified by the facts.

Operative treatment of exophthalmic goitre is indicated when after rational internal medication for a period not longer than three months the patient is not materially improved or cured. The statistics of Albert Kocher[4] showing that out of 254 cases 83 per cent were cured by operation and but 2 per cent died, is good evidence of the value of such measures, especially when contrasted with the poorer results following medical treatment. Barker[5], of Johns Hopkins, goes so far as to say that "In the present state of knowledge and practice, therefore, once a positive diagnosis of exophthalmic goitre has been made, it is, in my opinion, the physician's duty and privilege to recommend operation early." There is no doubt in my mind that the percentage of cures will be measurably increased when physicians adopt Barker's suggestion and the fatalities will be reduced to a minimum.

We come to the various operative procedures which may be employed in dealing with goitres. They are excision, enucleation, resection, exenteration of goitres, ligation of the thyroid arteries, division of the isthmus, and resection of the sympathetic ganglia. By far the most important procedure is excision. It is applicable to the majority of goitres and gives better results. The technic of this operation has been elaborated and described so carefully by Kocher that it need not be given in this brief paper.

The method of enucleation as devised by Porta and Socin seems to be in vogue in France. It contemplates the removal of nodes and masses of thyroid tissue from within without disturbing the posterior portions of the capsule. In selected cases it is of considerable value, but to make it a routine practice will lead to many disasters and fail to effect a cure in many cases. I have analyzed the cases reported by Delore and Chalier.[6] They report fifty goitres treated by intraglandular enucleation. Of these, one patient died—several severe hemorrhages were met with—tampons were used rather frequently—the recurrent laryngeal nerve was caught in one case and the healing was slower as a rule than with excisions. Shepherd[7] also did a number of intraglandular enucleations but abandoned the method after having two severe post-operative hemorrhages.

Resection as proposed by Mikulicz is also of value in selected cases, especially where after the removal of one lobe it is desired to remove a portion of the oter. By crushing with suitable forceps along the proposed line of division, the gland substance can be reduced to a ribbon of tissue which is easily ligated, and the stump left will not be so apt to bleed nor exude colloid material.

Exenteration is practically a form of enucleation, and is employed in the presence of large masses of broken-down gland tissue.

Ligation of some of the thyroid arteries, as first advocated by Wolfler, is employed to-day more as a preparatory measure for a more radical procedure than for its curative value. The superior thyroids being easier of access than the inferior are usually selected. The goitre undergoes considerable atrophy and many of the toxic symptoms in Basedow's disease are abated, temporarily at least. This procedure is frequently used by Kocher in profound Basedow cases and later followed by an excision.

Division of the thyroid isthmus was first advised, I believe, by Horsley for the cure of Basedow's disease, but the results do not seem to have justified

the idea that sufficient atrophy of the lobes would ensue to effect a cure.

Excision of the cervical sympathetic ganglia for the treatment of Basedow's disease, as first proposed by Edwards and later carried out by Jaboulay and Jonnesco, has been attended by such poor results that it is, for the preesnt at least, an operation not to be considered.

There are a few dangers connected with goitre operations which should be mentioned. Excision of too much of the thyroid will lead to operative myxedema—cachexia thyreopriva. The estimation of just how much to leave is at times a difficult matter, especially when both lobes are diseased, but should too little functionating gland be left the mistake can be corrected by the administration of thyroid extract or the implantation of thyroid tissue in the spleen, as has been successfully done by Payr [8] in a case of cretinism. More often, operators are apt to remove too little of the gland in Basedow's disease and the symptoms are not entirely abated. A second operation should be done in such cases.

Another danger to which attention has recently been strongly drawn by Halsted [9] is the removal of the parathyroid glands or their destruction during operations on the thyroid. Such an accident may be followed by tetany. The proper course to pursue in such cases is to administer parathyroid glands in some form—preferably the fresh parathyroids of beeves—and later, if possible, to implant one or more glands in the spleen. The parathyroids being small and rather irregularly located behind the thyroid are not easy to detect, and the safest plan to avoid them is to ligate the thyroid vessels as close to the gland as possible or to leave a portion of the posterior capsule, as advocated by Chas. Mayo.[10]

The danger of injury to the recurrent laryngeal nerve is mentioned in almost every surgical paper on goitre, but in this case repetition will do no harm, because its division leads to paralysis of the vocal cords and frequently to inhalation pneumonia. There are a few reports of successful suture of the nerve, but as a rule the damage is irreparable.

The presence of a so-called goitre-heart is in many cases a contraindication to a strumectomy. Thus dilation of one or more of the heart chambers, muscular and valvular changes, tachycardia and irregularity may be due to goitres, either from the dyspnea or pressure on the blood vessels produced by them, or from the systematic effects—the thyreotoxic effects, as observed especially in Basedow cases. Proper medical treatment will in most instances restore these patients to a condition in which operation may be done with comparative safety, but a careful estimate of the soundness of heart and lungs should first be made by some one competent to judge.

The choice of an anesthetic is an unsettled question in America to-day. The majority of surgeons in this country are inclined to use ether, but such is not the practice of continental surgeons and especially Kocher, who, with hi sexperience in over three thousand goitre operations, is entitled to speak with the greatest authority. His preference is for local anesthesia and only occasionally does he find it necessary to employ a general anesthetic. The only real argument in favor of general anesthesia is the abolition of pain, whereas there are a number of serious objections to its use. The depressing action of an anesthetic on a weakened heart—and practically all the Basedow as well as many simple goitre cases have some heart changes; the lowering of the blood pressure; the turgescence of the blood vessels in the neck; the danger of unwittingly injuring the recurrent laryngeal nerve; and the post-operative vomiting leading to hemorrhage and soiling of the wound are sufficient, in my opinion, to rule out general anesthesia for the majority of these operations. I have found it necessary to supplement local anesthesia with ether in one case where dense adhesions were encountered, but have not used it otherwise except in malignant cases.

The mortality of operations, other than strumectomy, in cases of Basedow's disease was investigated by Hirst [11], who concluded that the existence of exophthalmic goitre added about 15 per cent to the mortality of any operation performed upon the patient. Unless some other operation is imperative, it follows that the goitre should first be looked after.

My personal experience in goitre operations embraces but eighteen cases. Of these two were malignant, secondary to cancer of the larynx; three were simple goitres; three were early Basedow cases; and in ten cases Basedow symptoms were marked. The immediate mortality was nil, and I have been able to trace sixteen out of the eighteen patients, with the following results: The two malignant cases proved fatal from recurrences after intervals of four years and five months respectively; the three patients with simple goitre are cured; two of the three beginning Basedow cases were traced and were well. The after histories of nine out of the ten marked Basedow cases were obtained and showed that six are practically well and three much improved.

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THE RELATION OF THE THYROID TO MENTAL DISEASE.*

By JOHN W. ROBERTSON, M. D., Livermore.

The thyroid gland is a vital organ directly connected with that physiological process necessary to life. When disturbed in function, either by excessive secretion or a diminution of the glandular activity, it powerfully affects the body. The physiology of the gland has not been determined, further than that its total extirpation necessarily results in death. The partiological condition based on the disturbance of function is equally ill-understood and, necessarily, empiricism takes the place of scientific deductions.

We know that an increase of gland tissue, with probably increased function, results in rapidity of the heart action, and assume that the increase of glandular flow directly stimulates the sympathetic nerve. We know that there is an increase of metabolism with malaise and rapid growth of besh. Whether this be due to the saturation of the body with globin low in iodin, as has been claimed, or to metabolic changes due to unknown nervous origin, has not been determined. The symptoms are so various and relate, not only to the circulatory apparatus but involve the muscular, respiratory, digestive, urogenital and, especially, the nervous systems, that no definite clinical picture can be drawn beyond the three cardinal symptoms of enlarged gland, rapid heart action and protruding eye. This disturbance may be due either to a change in the gland itself or to some degenerative change in the sympathetic, producing a stimulation of the vasomotor dilators, yet no postmortem change characteristic of a diseased sympathetic has been found. We know that the disease may so disturb the vasomotor nervous system as to produce a functional disturbance and occasionally an absolute pathological neurosis.

On the other hand, a lack of thyroid activity, either because of gland atrophy or from an operation involving excessive destruction of the body, results in conditions equally injurious to health. We know further that the removal of a part of the thyroid body reducing it, and consequently its secretion, to normal, restores the physical health; and that, where there is a deficiency of secretion, either the transplantation of the thyroid into the peritoneal cavity, or the internal administration of thyroid extract, will restore bodily vigor, thus showing a direct and absolute relation between the gland and the various diseases we believe to be connected with its disturbance of function.

Generally speaking, it may be said that in all cases of exophthalmic goitre, the symptoms point either to a direct neurosis or a condition which has the sympathetic nervous system as a basis. The disease occurs in family groups, though but rarely is it directly hereditary. Associated in the same family we find hysteria, neurasthenia, epilepsy and the other neuroses, showing its distinctly nervous origin, and, very frequently, it is secondary to a neurasthenia and is precipitated by a mental shock. In the early stages of the disease the pulse rate is greatly influenced by emotional excitement. We can only explain this frequency of action by some disturbance of the sympathetic which may be partly due to an irritation; and the term thyro-intoxication is a satisfying word, if not a scientific explanation. The exophthalmos has been variously but never satisfactorily explained, though undoubtedly connected with the change in circulation.

The tremor, so often a symptom of this disease, is increased by effort and emotional excitement. Exophthalmic goitre is often accompanied, in addition to this tremor, by choreic movements, epileptic seizures, vertigo, headache and true megeim, thus showing the profound neurotic basis.

Next in frequency to the three cardinal symptoms, we find disturbances of metabolism; there is general malaise and such digestive disturbances, with rapid loss of flesh, as to strongly remind us of the gastro-intestinal condition preceding and complicating the early stages of acute mania and melancholia and which as a basis have a profound disturbance of the sympathetic nervous system. However, the theory has been strongly advanced, that this loss of flesh is due solely to the over-activity of the thyroid gland, which, in addition to its recognized function of neutralizing poisonous products of metabolism, has the direct power of greatly increasing oxidization. We also know experimentally, that thyroid extract, administered internally, rapidly reduces the flesh and that it also produces such physical prostration and muscular weakness as to be regarded as a remedy more dangerous than the disease.

While it would be entirely wrong to assert that mental conditions complicate all cases of exophthalmic goitre, it is certain that in many there is a change of mentality. They are more irritable, are more easily excited and lose brain power, becoming forgetful and easily confused. There is a change in their facial appearance not alone due to the enlarging of the palpebral fissure, nervous expectancy and excitability taking the place of the ordinary repose of manner. There may develop a more profound change resulting in a real mental condition, characterized by either excitement or depression; often these two conditions alternate. In a very few cases a still more serious disturbance develops—usually a marked melancholia with visual hallucinations, less often auditory, with the slow development of delusions of persecution. In my experience, cases developing into an absolute mental disease is not common, though I have met with several suffering from an acute delirium. Undoubtedly the connections between this mental disturbance and exophthalmos is to be explained by the changed brain circulation. While it is generally true that anything that weakens or disturbs the general health of a neurotic patient may precipitate an attack of insanity, we know that in both acute mania and melancholia the pathologic condition is one of disturbed brain circulation, and I can imagine nothing more

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liable to bring this on than the tachycardia, no matter how produced.

But to the general physician, the remarkable resemblance and relationship hysteria and neurasthenia bear to the early stages of exophthalmos are of vital interest and, so far as I know, have not been dwelt upon—and by many writers hardly more than mentioned. Usually preceding the disease and before any of the pathologic symptoms develop, there is a condition of neurasthenia or its cogener, hysteria, and even after the development of the exophthalmic goitre there is much in common between it and neurasthenia. We do not know what neurasthenia is, further than that it is a convenient term under which to class a large group of nervous patients, having a disturbance of the sympathetic nervous system in common; for instance, stomach neuroses, heart palpitation, flushing of the face, skin paresthesias; in other disturbances of the various nerves presiding over the stomach, heart, lungs and intestines, muscular weakness and morbid fears with introspective obsessions, sweating of the hands and feet and that general tired feeling have much in common with exophthalmic goitre. We have many cases where there is rapid heart action, where our patient is constantly feeling his pulse and is overcome with the obsession of fear that he is dying; or where there is perspiration suddenly breaking out over the extremities, depression which at times becomes a real melancholia. With rest, nourishing diet, faith in their physician and a proper environment, full recovery will come, yet no one can so prognose these cases as to entirely differentiate the possible full development of Graves' disease. In this we have, or may have, the depression, inability to concentrate the mind, the various obsessions of fear, the tired feeling and muscular weakness, stomach and intestinal disturbances, palpitation and other evidences of sympathetic irritation, making altogether a clinical picture that, in its early stages, can not be differentiated from neurasthenia. The one essential dissimilarity is the great loss of flesh in exophthalmic goitre, but this rarely comes until other symptoms have clearly established the differential diagnosis.

As the symptoms of exophthalmos differ so greatly, the treatment must be adapted to the individual condition. All cases require rest, and food of such a character that it nourishes and does not poison. When there is excessive activity of the gland, there is an increase both in the assimilation of albumen and the combustion of fat. Should the patient take only the normal amount of food, loss of body weight occurs. For this reason over-nutrition is necessary and it is stated that 18 to 20 per cent above the amount formerly used is necessary to maintain the ordinary weight. It often happens when the gland is actively functionizing, that it is not possible even by over-feeding to increase or even hold the normal weight. In all cases the modified Weir-Mitchell rest cure is to be followed. By this I mean that over-feeding, massage and electric treatments are excellent; but absolute rest in bed is not necessary and is often injurious. The great danger is from cardiac weakness: excessive fat or fat too rapidly put on, is to be avoided. At first it is desirable only to hold normal weight, later one pound per week can be safely added. Other means, supposed to act directly on the disease is a stabile galvanization of the sympathetic, cold water affusions, an ice-bag over the heart, with general hydropathic treatment has been recommended. No drug is of any value, many are distinctly bad. Bromide of potash and sodium phosphate may be used symptomatically. It must be remembered that exophthalmic goitre is not necessarily fatal, but often recovers spontaneously. For this reason we attempt to aid nature and assist where nature seems unable; rest and good nursing are all that can be done, apart from surgical operations which are often overdone.

DISCUSSION ON THE SYMPOSIUM ON THYROID GLAND.

Dr. Stanley Stillman, San Francisco: It was just about twenty-five minutes ago that President Evans asked me to give the surgical treatment of goitre before the State Society, and while it may have seemed to him a flattering proposition to me, I consider that he must have thought me a damn fool. If there is any subject upon which my mind is not at all clear, it is the subject of surgical treatment of goitre. In general, from my own experience, the first consideration that I give a case of goitre is whether it is of the cystic variety, which is certainly a surgical affair, and only a surgical affair. There is no medical treatment for cystic goitre. In the parenchymatous forms there is the greatest uncertainty. My own plan is generally to submit these cases to medical treatment, or to co-operate with the medical man in the treatment of them. There are many of these cases that do well. The goitre, while it does not disappear, never seems to affect the patient so long as the hpyerthyroidism is early combated. In other cases the treatment does not benefit, and in those cases I have removed part of the thyroid. The teaching of Kocher is to remove half of the thyroid, at first going through the isthmus, removing half and watching the results of that procedure. If the case requires further surgical work, then ligation of the superior and inferior thyroid arteries of the remaining half is done, which generally proves sufficient. There are cases in this category lying along the border line of exophthalmic goitres. That is, they have the tremor, tachycardia, sleeplessness and general nervous symptoms, never going to the extreme, which you find in the exophthalmic goitre, and which are often very well controlled by medical means. They are the class of cases that give us the greatest apprehension and anxiety as to what procedure to follow. It is in the pure exophthalmic goitres that the question of medical and surgical treatment is difficult. There are those who claim that there is no surgical treatment for exophthalmic goitres. I am not one of those. I have seen such startling results from extirpation of the thyroid in these cases and such distressing results from continued medical treatment, that I am coming to the opinion that exophthalmic goitre is properly and purely a surgical affection. As to the technic, it is too well-known for me to take up your time in that way. I would only say that I am accustomed to operate under ether anesthetic. I have never found it a necessity, nor have ever done one of these operations under cocain. I have watched other men do it and am less disposed to do it in that way. I have seen no untoward results from ether in these cases and I have seen a patient die without it under cocain anesthetic. That subject has been pretty well worked out by the Mayo brothers, and their experience is

such as to strengthen my belief in the desirability of continuing to operate under the general anesthesia. The preservation of course, of the parathyroids, just now is a very acute stage before us. Indeed, the whole subject of goitre is in a state of very active ebullition at present, and I do not know why this should be in California, either, because we certainly do not see as many cases as they do in other parts of the world, and we cannot speak from the experience of other sections. One or two points which I have been accustomed to observe in exophthalmic and parenchymatous goitre is the avoidance of any rough handling of the gland in its removal. I have seen in a roughly handled case, done with blunt dissection, tearing and stretching with the fingers and the use of force, sudden hyperthroidism following the operation and resulting fatally. The filling up of the system with the secretion of the thyroid gland as expressed of its juice during the rough handling, is something to be avoided. The preservation of the parathroids is of the highest importance and it seems to be unquestionably true that the whole of the thyroid may be removed so long as you do not disturb the nutrition of the parathyroids. The identification of these is not at all an easy thing, and it is not comforting to find them oftentimes after you have removed the thyroids, on its surface. The section through the posterior surface of the thyroid, leaving a portion of the cut surface of the thyroid, removing it and not ligating, but making a section through the posterior surface, ligating the vessels as you come to them, seems to be the safest way to avoid their removal, as well as the interference with the recurrent laryngeal.

Dr. W. W. Beckett, Los Angeles: The subject of thyroid glands and parathyroid glands has occupied the attention of the surgeon for the last year or two. There is so much that we do not know about them and so little that we do know, that it makes an interesting field for the surgeon. The parathyroids, those little life-saving glandules, have occupied the attention of the anatomists, the internist and the surgeon especially. I think one reason why they are so interesting is on account of the difficulty in finding them. We are told that sometimes the inferior one is situated down in the mediastinum, where the globules of fat are mistaken for it. It has been my plan in diseases of the thyroid, to subject them to medical treatment as long as the medical treatment seems to do them any good. Many of these cases, of course, are amenable to medical treatment, but as Dr. Stillman has said, of course the cystic variety is essentially surgical. A small cyst of the thyroid may do no harm. I want to call your attention to one particular condition in dealing with these enlarged thyroids, and that is the condition of menorrhagia in girls. I have had several cases where curettement and other treatment has had no effect on the patient, while thyroid extract in the majority of cases will cure them. There is a relation between the thyroid and the pelvic organs which is not yet fully understood. The parenchymatous variety of the thyroid many times causes no symptoms at all until quite large. Of course, where they are causing symptoms and medical treatment has produced no amelioration of the symptoms, I should remove a portion of the gland at least. I believe we are going, in the future, to remove more of the exophthalmic variety than in the past. They are going to be made well by surgical interference. Many are not amenable to treatment and receive no benefit at all by medical treatment, and cure may be had by the surgical treatment. I use ether anesthesia in all of my cases except the spinal anesthesia in some selected cases. I begin with a whiff of chloroform and use the ether by the drop method. I have never tried removing these tumors by local anesthetic. It seems to me that if I had to undergo the operation myself, I should prefer taking ether. The ligation of these inferior and superior thyroid arteries, I think, should be very carefully done. If you can do it within the capsule you are pretty safe, but without ligating them within the capsule you may cut off the supply of the parathyroids and cause distressing results. The method of Mayo, to keep within the capsule, is undoubtedly the safest operation. Of course the tearing of the tissue and the rough handling should be avoided. Dr. Welch calls attention to the application of cold following the operation, and he believes that great benefit has been derived in that way.

Dr. D'Arcy Power, San Francisco: The great mass of cases are treated internally, and yet I doubt whether there is any form of disease in which some rational consideration of the etiology ought to be taken more into account than these cases. To begin with we ought to recognize that they are divisible into two groups, a group in which the origin of the excess thyroid secretion is functional and that in which it is organic, and that makes the differentiation between those cases which are amenable to treatment and those which are not, which must go to the surgeon. There can be no doubt whatever that the thyroidism being to a large extent an excess of stimulation, that stimulation shall fall upon the thyroid gland and bring about this secretion. The cause of this should be ascertained. Stimulation is often reflex in its character, and often of pelvic origin, and there we have the first clew to these cases. Secondly, a number of them, especially those commencing in youth, are undoubtedly due to organic change in the tissue and thyroid gland. These cannot be expected to be treated medically. That distinction ought to be drawn in the beginning of these cases and we should then get better results. So far as the functional cases are concerned, we have to remember that where they turn out badly, it is largely by the symptomset; 1m szaagodufthtw- is largely by reason of the symptoms and these symptoms are sometimes in our control. Undoubtedly the question of feeding is one of the most important factors here, and the supply of nutriment to make up the enormous loss should occupy our first attention. Secondly, a number of these cases die purely from relative insufficiency of the heart valves, and while it is true that the ordinary heart tonics do not have their usual effect in thyroidism, they do have an effect; but it must be remembered that you need to increase the dose of the heart tonics to a great extent. I remember a case in Portland, which was supposed to be moribund, in which the heart tonics had been said to have been tried. As a purely last resort in that case, I tried large dosage of tincture of digitalis and within three weeks of the commencement of the case the man was walking about again. I do not know what became of him. These heart cases can be controlled by larger doses than normally used. In so far as the sympathetic system is concerned, we should use, in all functional cases, rest and nerve sedatives and bromides, in doses much larger than ordinary.

Dr. Rose T. Bullard, Los Angeles: I have used cocain anesthesia in some twenty or thirty cases of thyroid and have found it very satisfactory. I agree that there should be very little handling of the thyroid. I have found that in about a third of the cases there is an intense difficulty in breathing, the patient becoming very blue merely from pulling on the recurrent laryngeal. I have always insisted that there should be a large amount of oxygen on hand and have had two cases saved by oxygen. The blueness does not come on in the ordinary way. One or two cases I have seen are interesting because the removal of the thyroid seemed to remove the secondary disease, that is, the nephritis. In one of the worst cases of thyroid I have ever seen, I asked the hospital staff if they had examined the urine, and found that they had not. The urine was drawn and

I took the specimen to my office and found out that it was a case of nephritis. I expected an exacerbation and that the patient would die of acute Bright's, but the nephritis entirely cleared up. I have also noticed that enlargement of the gland is more common in cases of menorrhagia and pelvic trouble. In the medical treatment of the trouble you are all aware that the symptoms increase during the menstrual time.

Dr. Chas. G. Levison, San Francisco: There are one or two points with regard to the treatment of goitre which have not been sufficiently emphasized. The first point in the medical treatment of exophthalmic goitre as a preliminary to surgical procedure. Many cases are referred to the surgeon for operation which show all the symptoms of "Grave's disease," and it is not easy for him to refrain from operating upon this most interesting condition, and he frequently loses sight of the fact that medical treatment should be instituted. These cases can be put to bed, nerve sedatives and phosphate of soda given, and it is surprising how many cases of exophthalmic goitre will pass from under the hands of the surgeon. This has been my experience on numerous occasions. The preliminary ligation of the thyroid artery is an important consideration and an individual can be brought under the knife in a fairly satisfactory condition if this procedure is carried out. Kocher advises ligation of the two superior and one of the inferior thyroid arteries, but every now and then a case of tetany will develop as a result of this operation. This is due to the fact that an occasional patient will have two parathyroids occupying the lower pole of the thyroid. These are supplied by a direct branch from the inferior thyroid artery. On the corresponding side the parathyroids are absent. In cases of this type if the inferior thyroid artery supplying these parathyroids is ligated the secretion is cut off and tetany will develop, so that to-day it is recognized as a procedure associated with some danger. In operating in this field a complete hemostasis must be observed. Parathyroids can be found if the operation is done bloodlessly by using fine-pointed hemostats and introducing them into the thyroid substance at the points where the vessels emerge, as Halsted advocates.

Dr. E. C. Sewall, San Francisco: I wish to call attention to the value of the examination of the trachea in such cases of pressure, by means of the Killian tube or bronchoscope. It is possible by means of direct or indirect bronchoscopy to get a very good idea of the compression present. The procedure is comparatively simple and of great value. The tube can be passed through a cocainized larynx and the amount of compression very well and very easily settled.

Dr. F. Dudley Tait, San Francisco: It may be of historical interest to note that the disease under discussion was described as early as 1825 by Paré (?) and in 1837 by Graves and in 1849 by Basdow. I think it is a mistake that we make, and the writers make, in calling the disease in question by the name of a symptom. A more accurate way of proceeding would be to refer to the gland a term for instance, which you find abroad, of hyperthyroidism, a term comprising all the curable early forms and covering also the grave forms. It seems to me that a diversity of opinion among medical men regarding the treatment of thyroidism is entirely due to the ignorance of the pathology of the organ in man. We know nothing of it and it seems to me that on all sides we are treating symptoms. There cannot be a sound therapy without a pathological basis. No attempt has been made to classify the lesions. Wilson of Rochester is attempting it and, as you know, he has an enormous amount of pathological material from the Mayos. In looking over his thyroidectomy specimens one feature struck him and has some bearing upon thyroid treatment, and that was the fact that in all the grave cases of hyperthyroidism there was a marked cytolysis. There is a direct relationship between the extent of the condition and the gravity of the clinical symptoms. I think you could conclude from that that we should be extremely cautious in the use of the serum. As to surgery, we should say a word to the medical men that they should not exact too much of surgery. When a patient comes to the surgeon his work can be only palliative. I would ask Dr. Stillman whether it has been his experience that the exophthalmic symptoms have been improved by his partial parathyroidectomys. From what I have seen in my limited experience, I have very seldom noted any improvement of that particular symptom. The neurotic and vascular symptoms—yes.

Dr. E. Schmoll, San Francisco: The question of the treatment has been particularly discussed from the surgical standpoint. I would like to emphasize the standpoint of the physician when called upon to give his opinion as to whether surgical procedure should be followed in the treatment of goitre or whether internal treatment will be able to control the symptoms. The first question to consider is whether we have to deal with a case of goitre producing only local symptoms or whether internal secretion of the thyroid is disturbed and produces general symptoms of hyper- or hypo-thyroidism. In the cases where the goitre has remained a purely local disease without any symptoms of a general disease of the boyd I think we are all in favor of an operation in cases of cystic goitre, as no medical treatment will give any results. Operation should be performed at once in cases where the cyst compresses the trachea and produces a softening of the cartilage of the trachea. In such cases I have seen death occur from sudden obstruction and collapse of the structure of the trachea. In cases of parenchymatous goitre without general symptoms an attempt with iodine medication ought to be made. If there is no suspicion of hyperthroidism external iodine medication ought to be tried without any internal treatment. In other cases sodium or potassium iodine may be given internally, but in small doses not exceeding fifteen grains per day. Such cases have to be followed very closely, as I have seen symptoms of hyperthyroidism originate under internal iodine medication. In the cases of goitre with general symptoms we have to distinguish at least four categories. First, the goitre heart. The particular symptoms of this affection are a constant tachycardia wherein between ninety and one hundred and twenty signs of hyperthyroidism may be seen, a general nervousness and insomnia, slight tremor and a tendency to sweat. Local findings of the thyroid are usually very slight, very frequently they are completely overlooked. They consist in a general parenchymatous swelling, only very rarely developed to a degree where local symptoms of compression are produced. These cases ought to be treated medically, as under surgical treatment usually it does not yield very marked results and operation in these cases is usually as dangerous as in cases of exophthalmic goitre. Secondly, in cases of exophthalmic goitre operation is indicated where medical treatment has failed. Failure of medical treatment is indicated if the patient keeps on losing weight and if the tachycardia does not retrocede. The majority of cases of exophthalmic goitre, I think, are amenable to medical treatment. (I think very much better results can be obtained if two points are kept in mind which are paramount as to the result to be obtained in such cases. First, complete rest, bodily as well as mentally. Secondly, the dietetic treatment excluding meat in any form and putting the patient on a lacte-vegetarian diet.

These points are carried through when tremor and tachycardia diminish and improvement begins to set in. Medication from which I have obtained marked results are the calcium salts, following the suggestive investigations of Professor Loeb.) Thirdly, cases of exophthalmic goitre with beginning symptoms of hypothyroidism, as loss of heart function, of superclavicular fat pads, loss of lateral part of the eyebrows, formation of myxedematous patches of the skin, ought to be excluded from medical treatment. Here an alternation between feeding of thyroid and treatment directed against the symptoms of hypothyroidism ought to be instituted. In cases of creinism, surgical treatment is only indicated if the compression of the trachea should produce any alarming symptoms. eBfore finishing I want to attract your attention to the fact that we cannot take the symptoms of hyper- and hypo-thyroidism as an expression of isolaed disturbance of the thyroid gland. I would like to point to the fact that in almost every case of exophthalmic goitre which has come to autopsy permanent thymus has been found. And it may very well be that a primary disturbance of metabolism may have begun in the thymus which the thyroid has to neutralize. Another interesting relation exists between thyroid and adrenal. Where adrenal secretion raises the compression of the thyroid it seems to act as a depresser to blood pressure.

Dr. Geo. H. Hare, Fresno: I am much interested in the talk presented this morning and do not wish to undertake the discussion further than to add interest to it by referring to one case under my observation. It is a case of exophthalmic goitre of some two years' duration in which we have the typical symptoms of the exophthalmic hyperthroidism, tachycardia, nervous symptoms and disturbed sleep and the symptoms which usually accompany this condition. We have associated with this, and beginning about the same period, a condition of extreme hypertrophy, which apparently is the cause of elephantiasis from the waist line down. I wish to call attention to this case in order to emphasize the fact that we have in this a complication of the conditions which we are discussing this morning, offering a fertile field for further research. This case is of a young person of about twenty and the patient was in perfect health up to two years ago, except for a slight nervous disturbance, but during the last six months she has been suffering from a complete menorrhagia.

Dr. T. W. Huntington, San Francisco: With a fairly broad experience in the operative treatment of the condition under discussion, and with a wide faith in the therapy which has served for me to bring about excellent results, I wish to add just a word with regard to one or two points which have not been emphasized. I want to speak of the surgical treatment of the so-called bad, late, cases. The cases which my own personal friends tell me should never be touched with the knife, that we have spent our time watching the patients, and the time is passed for surgical treatment. My comment upon this is two-fold. First, why should the patient be carried on to this point? Why should this individual case be carried on to the dead line because at that point medical treatment does not come in? Cannot anything be done surgically for this case? I do not care to report a case, but I will give you the picture of such a case as I mean. It is a picture that can be verified and will come to the minds of some of you. A working woman, obliged to earn her bread, who has had this disease from three to five years, who has gone down the line with all the approved methods of treatment and has gradually degenerated—has become a victim to so-called thyroidism with the heart degenerated, with eyes prominent, with inability to pick up anything from the floor because of the degeneration of other muscles—with a patient whose hair is dropping out, with peculiar condition of the skin. I have had just such a patient and to-day the patient is well and able to earn her living. She has come back to the normal state of affairs. The woman to-day can not be recognized as the same woman of six years ago. I have watched her very carefully and to-day she stands as a living example. With regard to the death rate in operative surgery, it is not large. It differs in different hands and will differ widely in different hands if we have correct reports, but a death rate of three per cent is not large and it is not in excess of what would be demonstrated in decent and skillful people. Eight per cent by the Mayo brothers was considered at one time as too large.

Dr. E. E. Kelley, San Francisco: I do not speak from a very large experience in dealing with these subjects, but I have had a few cases. In the first place it has been remarkable to me that the size of the gland and the hypertrophy have very little to do with the seriousness of the symptoms. That is characteristic of the ordinary goitre. A large goitre may give no symptoms of pressure. But another case with a cyst may give very distressing symptoms. I believe in these cases the best help is through the knife. I have observed in one or two cases of my own that after section of the gland, if there is any raw surface of the thyroid left, the tachycardia will be very much increased for two or three days. I have followed the advice of some one, who advises cauterizing the raw surfaces that are left so that the secretion of the gland itself would have as little access as possible to the system. As a result I believe that the tachycardia has been materially reduced. I think, also, that rough handling seems to throw into the circulation an amount of secretion that affects the general nervous system and it has a material effect upon the operation, and I believe that the advice given here is correct, that the gland should be handled very carefully. Yet the most important recommendation that I have found of benefit in the exsection of these glands has been to keep within the capsule and litigate your arteries as you meet them, so as not to allow your operating field to be flooded. I believe that in operating in this way the mortality can be reduced.

Dr. A. W. Morton, San Francisco: I have been very much interested in these papers on this subject, but I think the great question is that we do not know much about the pathology. The result is that it is difficult for the medical man and the surgical man to segregate the cases. I have felt for the last two years that surgery offered more than any other form of treatment until Beebe brought forth his serum. In the Beebe serum I think we have something that is going to offer much relief to these patients. Taking the cystic type of goitre, there can be but one method of dealing with them. The great trouble is the pressure. Surgery always relieves that. There is no difference of opinion regarding these cases. I have the specimen from one case which I have removed recently, which I will pass around, where the tumor was pressing on the trachea until the patient could breathe only with difficulty from the stricture of the trachea. As to the glandular type where there is hypersecretion, I think it is of much importance for the surgeon and for the medical man to be continually in consultation on the case. Before operating we should try the medical remedy as much as possible, and after we have failed, we must not wait until we get the picture described by Dr. Huntington. Surgery certainly gives a great deal of relief in these cases. As to the technic, the speakers have already mentioned the anesthetic. I am satisfied that the further away from an anesthetic you can stay the better. We only need to point to the remarkable results of Kocher—he uses the local anesthetic. But if you will use the medullary nar-

cosis, as I have tried, you will overcome the principal objection to the anesthetic. In working with the medullary narcosis, there is no danger of cutting the laryngeal nerve. You can talk to your patient while you work and can handle the laryngeal arteries, which is impossible under anesthetic. Another point is hemorrhage. Hemorrhage has been one of the dreadful things, especially in operating under anesthetic. There is a simple device suggested by Dowbin of New York that I have found of much importance. I never operate on a case about the neck without lowering the blood pressure. You simply apply a tourniquet around the limb so that it interferes with the return venous blood and allows the arteries to fill up in the extremities. In any bloody operations about the neck it diminishes the amount of hemorrhage to practically nil.

Dr. Stanley Stillman, San Francisco: I would take exception to Dr. Morton's experience in ether anesthesia. I have had no distressing experience and have never attempted to use local anesthetic because I think there is more danger from cocain in these cases where there is a bad heart action to begin with. The matter of hemorrhage also does not bother me. That is a matter of technic largely, and instead of the method of bandaging the limbs and holding back the circulation, that may be better managed by lowering the feet and raising the shoulders, and you can accomplish all that bandaging can do. That is a matter of routine in all cases of operation around the throat and neck.

"THE FALLACIOUSNESS IN DIAGNOSIS OF SO-CALLED PATHOGNOMIC SIGNS."

DR. C. M. COOPER, San Francisco.

Discussion of Dr. Cooper's paper, published in the May Journal:

Dr. E. Schmoll, San Francisco: I am quite sure to express the general feeling of those present, in thanking Dr. Cooper for the brilliant paper, full of suggestions, which he has just read. In connection with the ideas here brought out, I would like to sound a note of warning with regard to the new territory of diagnosis which has lately been opened in connection with the etiologic diagnosis of infectious diseases, especially typhoid fever. You may know that the Widal reaction, the culture of typhoid bacilli from the infected organism, has taken the first place lately in the diagnosis of typhoid fever. I do not think with full justification. First of all, we occasionally run across cases in which a Widal is present without the disease being typhoid fever. This can occur under different conditions, as for instance, if the patient has had typhoid fever previously. This can easily be proven in cases which have had a regular course of typhoid, and occasionally such cases occur such as the ambulatory cases, and the typhoid has been overlooked and in the history we do not get any indication of the previous infection of typhoid. I have had three such cases in which the Widal was pronounced. In one case the history of typhoid could be obtained, and in the other two there was no history. In another condition, the Widal may be present where an organism occurs with bacilli related to the typhoid organism. It has been known for a number of years that the Widal occurs in cases of jaundice with swelling of the liver and enlargement of the spleen. These cases are due to an infection with an organism related to the organism of typhoid belonging to the coli-typhoid bacilli. In these cases the Widal has been considered a group reaction. A second etiologic source of error is the following: Typhoid fever is a clinical entity and not a histologic one. Not every case of clinical typhoid fever with pathologic lesions is due to infection with the typhoid bacilli. We have learned to distinguish a number of varieties, which are due to infection with the para-typhoid bacillus. Here the typhoid reaction may not occur. Then the presence of the typhoid bacilli in the organism does not necessarily lead to the clinical picture of typhoid fever. We have cases of infection with typhoid bacilli in the gall bladder in which no symptoms of typhoid occur. We know that persons harbor typhoid bacilli in the gall bladder for years and years. The typhoid bacilli may be excreted with the stools and isolated from the stools and still the case need not be a case of typhoid. A case has come under my notice in which the discovery of typhoid bacilli from the stools led to the diagnosis of typhoid fever, but the post-mortem proved the case to be a case of miliary tuberculosis with infection of the gall bladder—the infection had made its way from the gall duct into the stools.

Dr. Chas. Levison, San Francisco: With regard to the pathognomicity of certain signs, there is one point that I desire to bring out and to emphasize a protest against the unqualified acceptance of the value of the blood count in surgical diseases as far as the presence of pus is concerned. It is accepted more or less generally that the blood count is an absolute indication of the presence or absence of pus. On every hand, when one is in consultation, the first question asked is what the blood count has revealed, but, as a matter of fact, the average case reveals nothing. A professor in one of our local institutions, some three years ago, laid down the dictum that when the blood count showed 20,000 whites with the differential count of seventy-five or eighty per cent polynuclear leukocytes, that the abdomen should be opened; this, if observed, would be a most dangerous teaching. In conversation recently with Dr. Ochsner, of Chicago, in answer to a question from me as to the valuation he placed upon the blood count, he stated that the blood count is studiously taken in each patient, that it is filed away and after two years is taken out and studied. By this he meant that he attached no value to the blood count as an indicator of the presence of pus. I have noticed on various occasions that with eighty-two or three per cent polynuclear leukocytes with a leukocytosis of 25,000 or more, operation has been performed without the discovery of a trace of pus; and, on the other hand, I have found pus repeatedly where the blood count has been normal. The blood count should be accepted for what it is worth, but under ordinary circumstances should only be a factor in diagnosis and should not be accepted as an equivocal evidence of pus demanding operation. In my opinion, when leukopenia is present this sign is of the greatest value, naturally indicating low resistance and contra-indicating operation, for in those cases where leukopenia is present, if operation is performed, it is frequently followed by disastrous results. In opposition to the pathognomicity of signs is the pain of gastric ulcer, for it is well known that cases of gastric ulcer may exist without points of tenderness so that we can not exclude the diagnosis of gastric ulcer because of the absence of tenderness.

Dr. F. M. Pottenger, Los Angeles: Dr. Schmoll has referred to the matter of typhoid fever. How often is acute tuberculosis with fever treated for typhoid fever? Many times the diagnosis is made by the Widal test, and it is reported to me that this is the second attack that this patient has had. Another point with regard to the discovery of bacilli in the feces of tubercular patients. We have made routine examinations of the feces and have some 250 cases examined, and you would be surprised to know that the bacilli are found in two out of three cases of advanced tuberculosis. We do not make this examination of the feces until the patient has been thoroughly instructed with regard to the swallowing of the sputum, then when the alimentary

tract is cleared out we find the percent of 2/3 of the patients, who have a considerable number of bacilli in the stools. Another point in regard to the larynx, there have been a number of cases treated for partial paralysis and treated by different methods, such as electricity, when the actual cause of the apparent paralysis was perhaps pointing down to the anterior larynx to adhesions or enlarged glands. If you look at the larynx you will see that the cords do not come together and yet it is not paralysis at all, but an action upon the nerves by the glands. Another thing regarding the actual conditions of the apex of the lung, I do not think that the doctor would have you think that is always true. We are trying to make the people get away from this catarrhal disease. The general profession has believed so much in the catarrhal apex that they have called many things that. I have seen several of these cases where we could not determine whether there was tuberculosis present. We must be very careful before we make our diagnosis, and do not depend upon the fact that there is a catarrh of the apex but remember that most commonly the catarrh of the apex is tuberculosis.

Dr. D'Arcy Powers, San Francisco: Dr. Cooper has drawn our attention to the fact that there are no infallible signs and that we must be very cautious. It is true, also, that we sometimes let the pendulum swing too far the other way. We have had this pointed out to us so often. You take the most of these signs and though you may have them prove false here and there, yet they are things upon which we rely, and usually safely rely, in such diseases. It will be admitted that the Widal now and then does not give a true ring, but in 90 per cent of the cases it is true. So it is in the blood test, it fails very largely, but it is extremely valuable as a rule, and with regard to the possibility of a pre-existing disease. We note the development of an empyema in cases of acute lobar pneumonia. So it is all over the field. An apex crepitus may be something else, but it is most likely to be tuberculosis. The aortic insufficiency is usually marked by distolic murmur. We will do very well indeed if we do not allow too much skepticism creep in. Of course we must be very cautious with all of these signs. Another thing, I think it would be retrograding in the medical field if we were to lean to what Dr. Schmoll has said in speaking of clinical diseases away from their etiology.

Dr. Cooper, San Francisco: If I had read this paper as it was originally written I would not have had time to read it in the time alloted. I had to cut it down considerably and so may not have expressed my ideas as fully as I intended. I agree with what Dr. Pottenger has said that every case of chronic apical catarrh should be treated as a tubercular process. It is only in our reports of such cases, especially when they have improved, and have gotten well, that we have to be careful that we are not including processes which may be catarrhal in character or syphilitic. If we do this we will make our reports much more valuable. Dr. Powers has sounded the warning that we should not be too skeptical. I would personally doubt the pathognomic signs because that would assure my making a complete and careful examination of the patient. It is for that purpose that we should be more skeptical. The mistakes are made by the man who sees the signs present and turns away from the patient with his diagnosis based upon what he has seen. If he has some doubt in his mind as to the reliability of that sign, he would re-examine the patient and arrive at the proper diagnosis.

"A RESUME OF THE WEBER CASE."

Discussion of "A Résumé of the Weber Case: Was Adolph Weber Insane?" by Dr. R. F. Rooney, Auburn, printed in the Journal for May, 1908.

Dr. Gray, Eldridge: I have been much interested in this paper dealing with this young criminal and with his general mental condition. Another explanation of the mental and moral condition of this young man strikes me. It was brought out very clearly in the family history that this individual had an imbecile brother. There was, in other words, a clear stratum of degeneration in that family somewhere, and if it had been possible, I would have been glad to have had some further enlightenment with regard to the grandparents and other relatives of this young man, because coming, as I do, from a home for feeble-minded children, I can not avoid the conclusion that a considerable light can be thrown upon a case by the history of the family. I would not say that the case could not have been one of paranoia, but I am free to say that the history presented a very admirable history of the moral imbecile. I see, of course, a number of such cases. The picture is so clear in this case that I feel that it affords a good explanation of the behavior. The mental workings of an imbecile may be very clear. In our population I have a boy of six whose mental reasonings seem clear, and he tries to do as we tell him, but he has tried three times within the past three weeks to run away. He had not the money so he went to the postoffice and broke in and helped himself. He was detected and brought back. The supervisor of the institution called upon him for an explanation and he simply said that he could not go away without money and had to get it. We asked him whether he had ever done this before and he said that he had. He said that he had not the slightest appreciation of money and that because it is in the possession of some one else, it did not matter, and he can not appreciate the fact that the thing he desires he can not take.

Dr. J. W. Robertson, Livermore: It is almost an axiom in legal medicine that the more horrible the crime the more certain it is that the crime is the result of insanity. Moral insanity is not a disease and not even a mental disease. Moral insanity is regarded as one of the forms of mental disease. While it may not be complicated by delusions, as in this case, it is certain that many forms of moral debasement have their bases in an absolute mental condition. These moral degenerates should be protected and not punished. Both in the Durrant case and in this case referred to there is no question but what insanity was the basis of their condition. It is true that wherever insanity is the basis, the public feeling is so great that it is almost dangerous to present the defense of insanity. This is the only defense of such cases. In the Durrant case I believe that it has been properly urged and in the Weber case I personally urged to have this as a defense. Not that I believe that either man should have been acquitted, but in every case this should be the defense and the case committed to an institution built in the middle of San Quentin and there held for life, and this not for the purpose of punishing the patient but for the protection of the public.

Dr. A. M. Gardner, Belmont: I have been much interested in this paper and think that Dr. Rooney's position is correct. If Dr. Rooney's detailed account of Weber's case is correct, and if the symptoms were properly set forth, then Weber has been the subject of a judicial murder. But, unfortunately, this would not be the first instance where a judicial murder had been the result of trial upon those who were not responsible for their actions at the time. It is not at all astonishing to me that Dr. Rooney, and perhaps

those taking an interest in the trial, did not succeed in having the facts brought before the notice of the jury. When we find the Supreme Court of the State of California recording an opinion that a man may be morally insane but not legally insane, we are not astonished in the least that those trying such cases, lawyers and judges included, do not know and do not realize and do not appreciate these conditions of the abnormal man. If I have time I should like to refer to a case, that of a young man who was an inmate of Napa. Dr. Robertson knew him well. He suffered with paranoia and he will always suffer from paranoia. He improved to such an extent that the request was made that he might leave the institution with a nurse. He left and he ran away from the nurse. He then took up the life of an author and wrote very creditably.

At the trial I was asked what procedure I thought best to pursue in order to ascertain the facts of the case. I and other practitioners examined the young man and we all said, at the conclusion of the examination, that so far as he had evidenced, there was no indication of insanity. Yet he had delusions that his sisters were trying to poison him. He acknowledged to having had these delusions formerly but not at this time.

Dr. R. F. Rooney, Auburn: Because of limited time, I omitted large parts of this paper. I can not trace, in the meager details which I have received, any trouble, mental or degenerative, in the family on either side. But I am satisfied that if we could go back far enough, we could find the trouble. Calling this imbecility is begging the question. The victims of paranoia are those who have a mental twist. This young man was perfectly normal up to the sixteenth year, he was bright in school and his moral nature was perfect. He loved his little imbecile brother and spent hours in his company. It was after he began to deteriorate that he began to abuse the child. He did rapidly deteriorate, and it is a case of paranoia, I am absolutely certain.

THE EARLY SYMPTOMS OF DEMENTIA PRECOX.*

By CHARLES LEWIS ALLEN, M. D., Los Angeles.

While specialism in medicine is necessary and makes for progress, with the general practitioner must remain the bulk of responsibility for the recognition and treatment of disease. As it is under his observation that departures from health in the majority of instances first come, he must be acute to grasp and able to interpret clinical symptoms, since upon his ability to do so the ultimate outcome will largely depend. By no means the least important of symptoms are those of disturbed mentality, and being familiar with the normal mental reactions of his patients, the family physician occupies a position of advantage in deciding whether certain manifestations are abnormal or not. It is hence urged that a malady which leads to the intellectual desolation of many promising youths and maidens, cannot but intimately concern him.

Adolf Meyer in some recent communications has strongly urged the necessity for more careful study of the psychology of dementia precox, to the end that its roots may be traced back as far as possible into early life, into which they probably extend, with a view to correcting such morbid habits, mental and physical, as may there be found, in the hope that by so doing the otherwise inevitable mental deterioration may be avoided and the threatened victim may be rescued to sane and useful existence. The name itself is open to the objection that it predicates a necessarily unfavorable outcome and it has been opposed upon this ground since even Kraepelin himself admits that a proportion of the patients recover. Few, however, will dispute the service rendered by this author in grouping together under the name dementia precox a number of conditions having common features of onset and outcome. As Meyer puts it, however, regarding this disease only from the standpoint of its frequent outcome, is much like failure to distinguish between tuberculous infection and its advanced stage, consumption, the prognosis in either case being correspondingly unfavorable; and just as the outlook in tuberculosis is hopeful in proportion to how early it is discovered, so if we wish to improve the prognosis in dementia precox our endeavor must be to detect it early in the premonitory stage if possible. Jelliffe has also made some pregnant suggestions in his paper on Predementia Precox.

As in most forms of insanity, heredity plays a considerable role, a family history of insanity or neuroses having been found by Kraepelin in seventy per cent of his precocious dements. It appears as if the form of the disease itself is transmissible, though, of course, few prococious dements marry and produce offspring. Acute infectious diseases and stress of various sorts are often antecedent, but not more frequently than in other psychoses. Its course and the chronic degenerative changes found in the brain cortex in advanced cases favor the idea of a chronic intoxication of some sort, but as to the toxic agent we are entirely in the dark, though some perversion of the internal secretions, especially those of the sexual glands, has been suggested.

Kraepelin has enlarged the boundaries of his group from time to time and now takes in a number of different conditions, having in common, more or less gradual onset during the second and third decennia of life, tendency to dementia and characteristic dulling of the emotional sphere. The memory may be good, orientation little disturbed, and the ability to grasp impressions may be preserved, but the patient is unable to fix his attention for any length of time, is easily distracted, there is inability to co-operate impressions or to think and act in a normal way, and judgment is seriously impaired. Traces of negativism—by which is meant lack of co-operation and resistance to all measures, with apparent perverseness of speech and manner—and a certain stereotypy of movements are seldom absent. False sense perceptions are nearly always present, especially in cases of acute or subacute onset, affecting in order of frequency the spheres of hearing, sight and common sensation. Delusions are nearly always constructed, a fairly well co-ordinated delusional system differentiating a special clinical division. A characteristic of the disease is a lack of co-ordination between concepts and contra-concepts, and a tendency to intrusion

* Read at the Thirty-eighth Annual Meeting of the State Society, Coronado, April, 1908.

of the subconscious into the conscious sphere. The play of thought and action is much disturbed and the patient often has the feeling that something strange and foreign is suddenly thrust with irresistable might into his consciousness, hence is led to accuse outside influences of causing him to speak and act in the sudden, inappropriate and bizarre manner which marks this psychosis.

An explanation of the mannerisms in speech, tendency to form new words, constant reiteration of a word, a phrase or senseless syllables (verbigeration), incoherence, stereotypy of movements and negativism is based upon these psychological grounds, and as an anatomical basis, interference with the association tracts may be suspected. The patient often appears to be suffering from an inhibition of will and an inability to co-ordinate impressions or to express or suppress impulses. Hence at times excitement, again stupor with obstinate resistance. He also shows increased susceptibility to suggestive influences and imitativeness. Stransky has pointed out that a characteristic feature is the loss of the normal co-ordination between the intellectual and emotional spheres (his noopsyche and thymopsyche). This blunting of the emotional sphere is one of the earliest symptoms and explains the loss of feelings of sympathy, politeness and self-respect, causing indifference to conventionalities and inability upon the part of the patient to adapt himself to his surroundings.

There may be diminution of common sensibility, vaso-motor disturbances, and occasionally epileptiform attacks. Some changes in the eye grounds and in the pupillary reactions have been reported, notably by Clark and Tyson in this country, but their diagnostic value has yet been hardly established.

Of the three divisions made by Kraepelin, hebephrenia, the psychosis par excellence of adolescence, shows especially the intellectual defect, katatonia is marked by negativism, stereotypy, stuporous and excited states, dementia paranoides presents preponderance of delusional ideas, notably those of persecution and of grandeur, and tendency to their development into a system. The disease is generally ushered in by a period of depression, complaints of headache, disturbance of sleep and change of disposition upon the part of the patient. Dullness or restlessness may be present, depending upon the form which the disease is taking. Mixed forms are by far the most frequent. Since adolescence is a period of change and formation of new adjustments, many brains being improperly constituted through hereditary or acquired causes, are unable to stand the stress of rearrangement and give way.

Stanley Hall says: "There are two missing links indispensable to a full acquaintance with the many forms of precocious mental decay; first and chiefly, knowledge of the actual changes during the stage of puberty and later adolescence, which go on within the limits of sanity. This age has often been characterized as that of mental and moral inebriation and of psychic madness, and from any studies of its phenomena I am convinced that nearly all its symptoms can be paralleled in the inner and outer life of youth who do not lapse toward the terminal imbecility, but develop to sane and efficient maturity. * * * The other gap is the absence of record or available knowledge of the early stages in the development of the disease before cases come to asylums."

Many persons, he thinks, pass through mild attacks and are slightly impaired, without ever coming under medical observation. Let us compare with Hall some of the special psychic traits of puberty and the symptoms of dementia precox.

1. Tendency to inner absorption, revery, and unrestrained phantasy, "the birthday of the imagination" with illusions and the development of a delusional system.

2. Development of consciousness of self, intense introspection and self-criticism, with anxiety, morbid doubts and fears, imperative conceptions.

3. Overassertion of individuality and exaggeration of the ego, with delusions of grandeur and of altered personality.

4. Faculty of imitation at its height, tendency to mimic the mannerisms of gait, style of dress, etc., of others, with increased susceptibility to suggestion, echolalia, echopraxia ("Befehlsautomatie").

5. Tendency to assume theatrical roles and postures, with stereotypy.

6. Exaggerated self-consciousness and fear of ridicule leading often to senseless sayings and doings, with the impulsive and silly acts of the precocious dement.

7. Vocabulary enlarging and meanings of words being readjusted with the tendency to form new words and senseless combinations of words or syllables. (The "word salad" of Forel.)

8. Shyness and bashfulness, development of new feelings of sex and religious ideas, with sexual and religious delusions.

9. Changes taking place in the vascular and digestive apparatus may give rise to new and strange feelings, vaso-motor and digestive disturbance, insomnia, or somnolence, gluttony or refusal of food.

The methods of psychical analysis, especially by study of the associations, as begun by Freud and amplified by Jung and the Zurich School have shown the similarity between many of the symptoms of dementia precox and those of hysteria. Freud is of the opinion that this latter has always as its basis a disagreeable experience of some sort, in most cases of sexual character, and that the habitual effort to suppress the souvenirs of this experience causes increase in strength of the normally present contra-concepts, or as they are called by Jung "negative associations," which may gain so much the upper hand that normal mental action is impossible. On this basis Jung explains also, the narrowing of consciousness, negativism and other symptoms of dementia precox. The morbid associations detected, their removal if possible by the "mental catharsis" of Freud, or the "sidetracking" of Dubois has been urged as a helpful method of

treatment in functional conditions, and Jung suggests that it might be possible in the earliest stages of dementia precox to so modify faulty associations and mental habits as to favorably influence the course of the disease, since even granting its toxic origin may not autointoxication be at least partly due to the effect upon the secretions of disordered nerve processes?

The symptoms of dementia precox are fairly characteristic, and should be sought for in any young person who shows unaccountable change in habits and disposition. In this connection the scientific study of the mental and physical characteristics of the pupils in our schools and colleges should put at our disposal valuable information and this work should command the support of all physicians.

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Discussion.

Dr. Moore, Los Angeles: As the doctor has said, the essence of this question is time. Dementia praecox is dementia and dementia is a disturbance of the mental sphere. If that is so and if the mentality depends upon the visible condition of the cells of the brain, then when the cells of the brain have begun to degenerate there is no hope for them. We may be able to stop the degeneration, but can not put back the cells when they are dead. Therefore I say that the essence of this thing is time, and as Dr. Allen has said, it is Dr. Allen who sees the cases first. The essence of the diagnosis of dementia praecox is peculiarity. A child who is peculiar is a child who ought to be watched and who is the one who will develop dementia praecox, and when it is developed that is the end. Peculiarity may arise in almost any sphere. A case was under my observation two months ago which has gone on and is now in an almost complete state of dementia, in which the only symptom (the boy has been a perfectly normal boy of strong mentality) had been all through his life a condition for which I can not find words, except to say that it was involuntary liziness. The father had tried to make him do certain things and he could not do them—he wanted to do them but he could not. There were no other symptoms until he began going into the negativism and a very rapidly increasing dementia. It was involuntary laziness. If it could have been rectified early, if he could have been put on a ranch and have been made a rancher, his mind might have been saved. But the nature of his peculiarity was not recognized. The essence of the thing is time, and the time is in the hands of the general practitioner, because when the specialist gets the case he has a case before him in which he is as much interested as the surgeon is when he gets a technically perfect operative case, —but the patient dies.

Dr. Allen, Los Angeles: In the hands of the general practitioner remains the recognition of the early stage of this disease. If he recognizes a peculiarity in a child he should suggest such changes in the methods of training that child as will prevent the development of this patient to that stage which makes him a care to the community.

FUNGUS COCCIDIOIDES.*

By H. A. L. RYFKOGEL, M. D., San Francisco.

The first case of coccidiodes on record occurred in Buenos Aires in 1892. With the exception of this case, all others have lived in California and of them 50 per cent have been domiciled at one time or another in the San Joaquin valley.

The next two cases were reported by Dr. Emmett Rixford of San Francisco. He and Dr. Gilchrist, who studied the cases with him, did not succeed in cultivating the organism and concluded that, on account of its peculiar structure and growth in the body, that it was not a fungus, but belonged to the animal kingdom group of protozoa, and gave it the name coccidioides imitis. Dr. Montgomery of San Francisco saw the next reported case. He evidently obtained a growth of the organism, but thought it a contaminating mold and destroyed it.

The fifth case occurred in the service of Dr. Herbert Moffitt at the San Francisco City and County Hospital. At autopsy the distribution of the abscesses necrotic areas and granulomatous abscess suggested glanders, and slides and cultures were made and guinea pigs inoculated.

In the pus the bodies previously described by Rixford were seen. In the culture a mold appeared which was believed to be at first a contaminating fungus; the pigs were later killed and autopsied and when the same fungus appeared it was realized that it was an extra corporeal cycle in the growth of the bodies seen in the pus.

Dr. Ophuls observed the direct transformation under the microscope and the proof that the bodies were stages in the life history of a fungus and not protozoa was complete.

Coccidioidal disease must be classed among the infectious granulomata. You will remember that in all the granulomatous diseases, anthrax, glanders, tuberculosis, syphillis, rhinoschleroma and coccidiodal diseases, the local lesions are the most marked feature; in contradistinction to the products of acute inflammation, the new growth seen in these diseases is relatively permanent and the organisms causing them are able to live for a much longer period in the body without being destroyed by the protective forces.

In their chronicity they form an ascending series with anthrax, a very acute disease, and leprosy, a very chronic one; the local lesions all consist of an infiltration of the tissues of new growth resembling granulation tissue, but differing from it in relative permanence. In this structure endothelial giant cells and lymphocytes are more abundant than in ordinary granulation tissue. The poisons of the tubercular bacillus, fungus coccidioides, etc., seem to have the power of exciting a proliferation of the connective tissue cells and later causing them to necrose; the necrotic tissue then attracts the leukocytes and the typical tubercle is produced. The tubercle bacilli do not possess the power of attracting leukocytes as do the staphylococcus and streptococcus pyogenes; they only do so indirectly.

* Read before the San Joaquin Valley Medical Society.

The various granulomata, though conforming historically to a general type, differ so markedly among themselves that microscopic examination of the granulomatous tissue can usually distinguish them without isolation of the specific organism. To this there is an exception—the lesions of coccidioidal are identical in their histological structure with those produced by the tubercle—the spores of the fungus seem, however, to attract leukocytes and there is therefore a much greater tendency to early multiple abscess formation than in tuberculosis.

Morphology.—In examining a drop of pus from a coccidioidal abscess, there will be seen numerous spherical bodies of varying size; the adult forms are about four times the diameter of a red-blood cell, they are surrounded by a highly refractile, double centered membrane; from this membrane when unstained very numerous spores project—no nucleus has been demonstrated. In the tissues this organism grows by endogenous spore formation, the protoplasm divides in two, then four, etc., until a large number of spores, usually a hundred or more, are formed; a tear then forms in the capsule and the spores are discharged; empty capsules can usually be found in the pus. Some controversy has been waged as to the relation of this organism to the blastomyces that produce certain dermatitites and even fatal general infection. That they are related can not be doubted, but it is certainly not proved that they are identical; the blastomocytes always grow by budding, not by endogenous spore formation, as does the fungus coccidioides; the blastomytes grow similarly in the tissues and in culture media, where as the fungus coccidioides, as will be presently explained, grow entirely different in the tissues and in culture media. The blastomocytes usually produce a skin lesion; the fungus coccidioides only sometimes; the blastomocytes infections are usually easily cured; the fungus infections have with one exception all proved fatal. If one of the bodies from pus be watched under the microscope the thick membrane becomes thin in one place and begins to evaginate over a bud of advancing protoplasm; this soon forms a coarse thread, the thread later becomes divided at various points and branches. Some of the branches grow into the air, forming aerial hyphæ, and on these there are formed spores by means of contraction of the protoplasm, the fungus grows readily on all the usual culture media as a dense, felted network closely attached to the media.

At times the aerial hyphæ are so numerous that the culture looks like fur or wool. When the fungus is injected into an animal these spores swell and become transformed into protozoon-like bodies, which they multiply by endogenous spore formation; if these spores are transferred to fresh media they send out hyphæ and grow as a mold.

It will be seen that the growth and appearance of this fungus in tissue and in culture media in no way resemble each other.

Animal Inoculation.—If an animal be inoculated subcutaneously with pus or culture, no lesion, or a small abscess which rapidly heals, results; if the injection be made intraperitoneally, the characteristic infection takes place, consisting of numerous tubercles, caseous areas and abscesses; if the animal be a male guinea pig a suppurating periorchitis almost invariably occurs. You will remember that this reactions—a periorchitis—following peritoneal injection of pus, was formerly supposed to be pathognomonic of glanders; coccidioidal disease is the only other known disease in which it occurs.

The cases seem to be separated into two groups: First, those with primary cutaneous infection; second, those with primary pulmonary infection.

Those with primary cutaneous lesions show pulmonary involvement later, and those with primary pulmonary lesions frequently develop skin disease; although the first four cases all showed skin lesions, many of the later have not done so.

The general macroscopic appearance of the tissues taken as a whole at autopsy resembles glanders very closely and many of the cases bear a clinical resemblance to this disease, although the histologic and macroscopical appearance of the tubercle, as before mentioned, are identical with tuberculosis. The skin lesions usually resemble some of the tubercular skin lesions. Some of the cases, however, presented the large tubers with secondary ulceration seen in mycocis fungoides. In some, the skin lesions were present for years—seven to eleven—before the internal organs were affected; the progress of the disease is rapid, spread occurring by both lymphatics and blood channels.

In all the organs the disease appears as miliary tubercle or miliary abscess, although in some cases large abscesses occur. As in staphylococcus infection, multiple osteomyelitis occurs.

The symptoms depend largely upon the site, rapidity and extent of the lesions. Chills and sweats are usual, especially late in the disease, showing that the parasite secretes a poison which has a wonderful effect on the heat centers. In the first case seen by me the patient had the skin lesions eleven years and was then suddenly taken with the symptoms of pneumonia. At autopsy the lungs were filled with the tubercle, a section of which I show you under the microscope.

The case of Dr. Moffitt began three months before death with a chill; in three days one gallon of fluid was removed from his pleura; then there occurred progressive suppuration of both knee joints, one shoulder, both elbows and wrist, suppurative periostitis of frontal bone and periostitis of tibia. The autopsy showed consolidation of lung with abscess formation, necrosis and abscesses of numerous lymphatic glands, nodules and abscesses in spleen and liver, but no skin lesions.

Dr. Hirschfelder's case showed the symptoms of meningitis. Autopsy findings: Pseudo tuberculous (coccidioidal) meningitis with involvement of pericardium, spleen and kidneys; no skin lesions.

Dr. Sander's case showed an osteomyelitis of the foot, the diagnosis was made and the leg amputated. This patient is the only one known to have been cured of the disease.

In Dr. Montgomery's first case a cough developed as the first symptom ten months before death; two

months before death, cutaneous lesions like those of mucosis fungoides appeared. At autopsy diffuse pulmonary consolidation and an immense liver abscess were found.

In all, eighteen cases have been reported; in five of these the initial lesions were in the skin, in three of the remainder the skin was later involved; in ten no skin lesions occurred. It will be seen that there is no characteristic set of symptoms constant to the disease; when, however, multiple abscesses or persistent skin lesions or unexplained pulmonary infiltration occurs, the disease should be suspected and search made for the parasite. A drop of the pus under the microscope will reveal typical spherical bodies. As yet no clue has been obtained as to how this infection is carried. Systematic examination of the small animals dying or showing abscesses should be made and thus the mode of transmission of this terrible disease might be found and its spread stopped.

SMALLPOX.*

By C. H. WALKER, M. D., San Jose.

In view of the fact that smallpox is on the increase in our city and other towns and cities of California, I have been asked to prepare a paper, long enough to start a discussion of the subject at least.

Smallpox, like bubonic plague, has carried off its millions of victims, but I shall avoid the history of the disease, only mentioning the last important epidemic, which occurred in Montreal, 1885, and was solely due to the opposition of the French-Canadians to vaccination.

My object tonight as health officer is to deal more particularly with the contagion, invasion and early recognition of the disease, owing to the lack of opportunity of many able physicians to see cases of variola. Mistakes in diagnosis are liable to be made early in the disease. Any eruption not certainly understood should be promptly reported to the health officer as suspicious, thus throwing the responsibility of diagnosis upon that officer, who is or should be qualified for this work. It is the health officer's duty to see that the physician who reports a suspected case of smallpox suffers no loss of confidence from the patient or his friends.

The protection of the physician interests is easily accomplished if the health officer is tactful and ethical as he should be. And the physician in charge should remember that the health officer many times makes personal sacrifices to protect him, and therefore the physicians of a city owe their support in protecting the conscientious health officer in the performance of his duty.

Variola is highly contagious, few persons unprotected by vaccination escaping the disease if freely exposed.

The contagium of smallpox is developed in the body, and given off in the secretions and excretions. The fine epithelial scales are supposed to be the most important factor in conveying the specific elements of the disease. It is generally admitted that the disease may be transmitted at any time during its course, but is most dangerous to others when suppuration is about to commence. However, in rare instances, people have been known to contract the disease from patients while in the incubation stage.

During an epidemic of smallpox public conveyances of all kinds, mail matter, money, etc., are active agents in its spread. It must not be forgotten that varioloid is smallpox modified by vaccination, and is capable of infecting a well person with the most malignant form of smallpox.

Epidemics of smallpox recur at irregular intervals, because long periods of freedom from an epidemic leads to public carelessness, with neglect of vaccination and consequent increase of susceptibility of the population to the disease. At the present time we have in this city a greater variety of eruptive and contagious diseases than at any time during the last five years, viz., scarlet fever, measles, chickenpox, smallpox, la grippe, diphtheria and typhoid fever. While the cases of each are few, they are to be considered, as smallpox may in the early stage resemble any one of these diseases. When there is a severe chill or series of chills, rapid rise of temperature, headache, backache and vomiting, reserve the diagnosis for three or four days, but be sure and isolate the patient. Incubation period is from ten to fourteen days. Occasionally there is a slight rise of temperature, but usually there are no symptoms during the incubation period.

When once the infection enters the system all means to stay the disease are of little benefit, except vaccination and that only in the first four or five days after becoming infected. An exposed person should be vaccinated without delay, and to be sure repeat the operation daily until you see that one is beginning to take, thus taking no chances of failure and losing the opportunity of preventing the disease or at least modifying it.

Invasion—The chill of smallpox is more violent than in any other eruptive disease. As I have said, this may be one long severe chill, or a succession of shorter chills; the temperature rises rapidly until the evening of the third day, the pulse is full and increased in frequency from 110 to 150. The intensity of the constitutional symptoms of the stage of invasion does not always bear a direct relation to the intensity of the disease in its eruptive state. A very acute prodromal stage may be followed by a very mild eruptive state, although this is not the rule. The constitutional symptoms, however, which accompany the eruptive stage correspond in intensity with the extent of the eruption. As soon as the eruption appears and during the papular and vesicular stages, the constitutional symptoms rapidly improve and in mild cases this is the time when the disease is spread around, as the patients usualy feel well enough to visit the doctor, or calls on friends or takes a trip on the railroad and insist that there is nothing the matter as they do not feel ill. The writer thinks that these are the most dangerous cases in spreading the disease, and from the viewpoint of the health officer should be dealt with in the most positive manner.

* Read before the Santa Clara County Medical Society on January 15, 1908.

Eruption—This appears on the evening of the third day after the initial fever, or more frequently on the fourth day. The eruption appears first as macules, scarcely raised above the surface; these rapidly change to papules. They are first observed on the forehead, near the border of the hair, and on the wrists and forearms. If the case promises to be a bad one, these macules are so close together as to resemble that of measles. In less than twenty-four hours the eruption appears on the body and limbs. These papules have a "shotty feel" beneath the skin. During the second or third day vesiculation commences, twenty-four hours later umbilication of the vesicles develops, and by the eighth or ninth day the vesicles are transformed into pustule. When the disease has progressed to this stage no physician could possibly fail in diagnosis.

In severe cases many distressing symptoms and complications may appear, such as cough, sore throat, cutting pains in the pustules, injected eyes, photophobia may be extreme and sleeplessness. Desiccation begins on the eleventh or twelfth day and occupies from one to two weeks. The swelling and redness disappear with the drying up of the pustules. The crusts drop off, leaving the surface formerly covered by each crust of a reddish brown hue or of a cyanotic color with elevated edges; this, then, is the course of the ordinary form of smallpox —variola discreta.

I shall simply mention some of the other forms, which will probably not be met with during our mild epidemic that seems about to get a footing in San Jose: Variola confluens, variola haemorrhagica, Purpura variolosa and variola haemorrhagica pustulosa, these are varieties as their names indicate.

Of the comparisons I shall say nothing.

Diagnosis—In the pustular stage of smallpox, a well-marked, abundant eruption is hard to confuse with any other disease. Its early recognition, however, is not always easy. I have mentioned a few diseases with which smallpox might be confused, but there are others. A few years ago, during a smallpox epidemic in a certain Eastern city, a large number of cases were incorrectly diagnosed and sent by physicians to the smallpox hospital, and these cases represented no less than twenty-five different diseases.

The prodromal eruption of variola is most frequently confused with measles or scarlatina. In measles the eruption appears upon the entire face and back simultaneously, it is preceded by fever, but that fever is associated with marked catarrhal symptoms. The stage of invasion is less severe in all its manifestations. It is not always possible to get a clear history of the prodromal symptoms of smallpox, and further it is not uncommon for the eruption and the later constitutional symptoms to be so mild as to be very deceptive. Even in the mildest cases, however, the few lesions which do exist about the forehead and wrists present the peculiar characteristics of smallpox. They are very hard, shotty papules, they are umbilicated vesicles or they are large, prominent pustules with prominent globular apices. They appear in the palm of the hand and soles of the feet.

In the vesicular stage smallpox is most likely to be mistaken for chickenpox. In chickenpox the lesions are more abundant on the body, less on the face and extremities; they do not have the characteristic shotty feel and do not umbilicate. Chickenpox vesicles collapse when punctured, smallpox vesicles do not collapse when punctured.

It may seem foolish to mention acne as a confusing factor in making a diagnosis, but when the lesions are discrete and are not abundant confusion with an indurated acne is possible.

In differentiating between any other eruptive disease the "grisolle sign," as described by Moore, may be of some service. If, upon stretching the skin the papule becomes impalpable to the touch, the eruption is not smallpox.

Finally and again, severe chill, intense headache and backache lasting three days, rapid rise of temperature, vomiting and a shotty eruption. Isolate the patient at once. Notify your health officer immediately, and advise all persons in the house to be vaccinated.

Personal Care of the Physician—The doctor should have a long robe, if not, do not remove your hat or overcoat. While in the house he should avoid touching anything except the floor with the soles of his feet. Avoid shaking hands with anybody.

Treatment—Promote elimination, relieve symptoms and sustain your patient.

SOME EXPERIENCES OF A HEALTH OFFICER.*

By H. J. B. WRIGHT, M. D., San Jose.

Garbage—Section 20 of Ordinance 1644 of the City of San Jose reads in part as follows:

"No person shall throw or deposit any garbage or any putrid or stinking animal or vegetable matter or filth upon any lands or creeks in the City of San Jose." Section 45 of this ordinance provides a fine of not more than $100.00 for a violation of this Section 20.

The health officer of this city finds it incumbent on him to attempt the enforcement of this Section 20 almost daily.

Theoretically, the prompt removal of all garbage from all parts of a city is easily accomplished, but in practice the result often comes short of the theory. Ignorance, indifference, misdirected economy, stubbornness and poverty are important factors tending to prevent a health officer from having all garbage removed before it becomes a menace to the public health. In most cities the board of health formulates plans and makes general rules, but the health officer must take the initiative and become the active agent in the enforcement of sanitary laws.

The following instances will serve to show what difficulties a health officer has to contend with and what mountains of opposition he has to climb in

* Read before the California Public Health Association.

order to protect the people from the evils of decomposing garbage:

A poor, helpless old widow occupies a small, dilapidated house, the rent of which she is hardly able to pay. She allows her garbage to accumulate near her back door, and in time it becomes harmful and offensive, and one or more of her neighbors notify the health officer, who immediately investigates and orders the old lady to abate the nuisance. The removal of the garbage will cost 50 cents or a dollar, and the tenant informs the health officer that she has no money with which to pay for the work and her credit is not good. The health officer next serves a notice on the agent of the owner of the property, and he replies that he has no instructions to apply money to the removal of garbage; besides it is the duty of the tenant to keep the premises in a sanitary condition. The owner of the property lives in a distant city. A letter addressed to him is returned to the sender, and further inquiry elicits the fact that the owner is in Europe. Thirty days have now passed, and the garbage in the backyard stinks worse than it did when the health officer first saw it, and the people in that neighborhood cry out against the inefficiency of the health department. It is true the old lady violated the ordinance, but her violation was one of necessity rather than one of choice. To arrest her will not remove the garbage. What can be done? The health department has no money with which to pay for the removal of filth which is lodged on the premises occupied by poor people. The officers might persuade a garbage hauler to remove the objectionable mass, and then attempt the collection of his bill, bringing a civil action against the owner of the property. But you must see at once that such a course would be impractical, for the costs of the action to the plaintiff would be ten times as much as his bill for removing the garbage.

The case here cited is an extreme one, but such cases do actually arise in all cities.

The following instance will serve to show how an equal difficulty arose from the acts of a rich corporation:

The Southern Pacific Railroad Company brought down from San Francisco during the three years last past hundreds of carloads of incinerated garbage, and deposited it in the northern part of San Jose where that company is making a very large switch yard. No objection was made by the board of health as long as the stuff brought down was properly incinerated. Unfortunately, the cars came down after a time, partly filled with raw garbage. During a few months in 1906 the company dumped hundreds of tons of decomposing or decomposable garbage within the exterior boundary lines of San Jose, and this to the injury and disgrace of this city. San Jose was being used as a dumping ground for San Francisco. A formal notice by the health officer, in which attention was called to the ordinance bearing on this subject, was served on the roadmaster, who had the work in hand. This brought a confession of negligence and a promise to discontinue the work. For a few months the promise was kept. A renewal of the outrage brought an action by my successor in office, charging the roadmaster with violation of the ordinance under consideration.

The defendant asked for a jury trial and the jury brought in a verdict of not guilty, the evidence showing that the defendant did not, with his own hands, dump garbage in San Jose. Now had the ignorant laborers, who were in the employ of the company, been arrested and brought to trial charged with throwing or dumping garbage in this city the jury would, in all probability, have brought in a verdict of not guilty, basing their conclusions on the fact that they (the laborers) only did what they were ordered to do and they were ignorant of the law. The jury would have said the roadmaster ordered this work done, and he is to be blamed if any one. The roadmaster is the real offender; punish him. These cases serve to show some of the difficulties that stand in the way of the official who tries to keep a city free from garbage, tries to enforce an ordinance which was wisely made for the protection of the people and the promotion of the public welfare.

There is another side to this garbage question—a side which is more pleasant to look upon and more inviting. It is worth noting and remembering that at least ninety-five per cent of our people do obey the ordinance under consideration, thereby manifesting a commendable spirit of cleanliness.

Several years' work as a member of a board of health convinces me that each city should take over the business of garbage removal—that the people who have decomposing or decomposable matter on their premises should be required to place it in covered receptacles, where it could be reached by men employed by the city to haul it away at stated intervals and in a certain manner. In other words, the city government should assume more duties with their corresponding responsibilities, trusting less to the individual citizen. It is all well enough to appeal to the civic pride of our citizens, but while we are making the appeal it must be remembered that the garbage is rotting in their backyards, and the energetic enforcement of the law is more effective than appeals.

Births and deaths—The number of births in San Jose during the year ending June 30, 1906, was 373. The deaths numbered 413, but 18 deaths were caused by the earthquake, and these should be deducted from the total because they were unusual and accidental. After such deductions, we have 395 as the deaths for the year; but the births were only 373.

The population of San Jose during the period under consideration was 29,500, which makes the percentage of deaths 1.33, or 13+ to the thousand population. That the births should number less than the deaths, when the mortality is as low as 13+ to the thousand, deserves serious consideration. The deaths being in excess of the births, any increase of our population must be due en-

tirely to immigration. The birth rate is not only lower relatively, but it is low positively.

Of the 373 children born in San Jose during the year ending June 30, 1906, about one-fourth had parents who were foreign born and a large number of the remaining three-fourths had one parent who was foreign-born. To me these figures are very important when studied in connection with other relevant facts.

It is a lamentable fact that nearly one-half of the inmates of the insane asylums of this state are of foreign birth, but only *one-fourth* of our inhabitants come to us from foreign lands. Twenty-five per centum of aliens in this state furnish fifty per centum of our insane. This is certainly of more than passing significance; that heredity is an important factor in the causation of insanity all are agreed. Now that class of our citizens, which constitutes twenty-five per centum of our population and is so prolific of subjects for our asylums, is also as productive of children as that class whose progeny are less frequently found in our insane asylums. It is not my pleasure to say whether or not it would be better for the native-born people of San Jose and the State of California to be more prolific, but I will venture the hope that if either class shall become less prolific, it may be the foreign-born.

The burial of the dead—The state law governing the burial of the dead has become the law of all the cities of this state, and a very good law it is. Under this law, it is a misdemeanor for any person to bury the body of any human being anywhere in this state without first having secured a permit from a registrar or subregistrar, who has been specifically set apart for that purpose. Before such a burial permit can be granted, the issuing officer must be furnished with a death certificate signed by a legally qualified physician or a coroner, and said certificate must contain many facts as to age, sex, nativity, cause of death and so forth. The permit may give permission to bury the deceased in a backyard, an open field or a cemetery.

It happens occasionally that people desire to inter prematurely born infants in a corner of the garden, and such interment is sometimes made secretly. It must be apparent to all that such secret disposal of the dead is fraught with danger to the public, for much crime might be concealed in that manner—even the crime of infanticide.

Physicians and midwives should aid the health authorities in their efforts to have all the dead legally buried.

Oak Hill Cemetery, which is more than a mile outside the City of San Jose, is under the supervision of the Mayor and Common Council. The earthquake killed about 150 people in Santa Clara County, and a large percentage of these had to be buried in Oak Hill. The Cemetery Association can bury eight or ten bodies daily, and do it in an orderly and becoming manner. When application was made to the board of health of San Jose during the troublesome days immediately following the quake for burial permits for the interment of 20 or 30 bodies daily, both the registrar and the Cemetery Association were too busy to be formal; this resulted in a few permits being slightly wrong, the error being due to defective certificates of death issued by the coroner. In two instances these errors caused some trouble. The body of a man found in the ruins of the buildings at Agnew Asylum was buried in Oak Hill Cemetery on a permit issued by the board of health of San Jose as that of John Blank, and the interment was attended with very considerable ceremony and no small expense to the mourning Blank family, all of whom were residents of Santa Clara county. A day or two after the burial the real John Blank presented himself to the mourning Blank family to the very great surprise of all. In fact, he had not been hurt in the crash of the asylum buildings at all. A pauper had been buried with more honor and at more expense than is usually extended to people of his class, and all because a mistake had been made. In another instance, a permit was issued for the burial of James Wilson Rogers. Some days thereafter the relatives appeared before the health officer, stating the true name of the person buried was not James Wilson Rogers, but John William Rogers and they wished the records altered in keeping with the facts.

Suppose that John William Rogers had conveyed a piece of land, reserving a life interest in it, and suppose again that the said John William Rogers disappeared from San Jose and died in a distant city, where he is not well known and his body is shipped to San Jose for burial and the accompanying certificate gives the name as James Wilson Rogers. The deceased has no relatives in San Jose, and the burial permit is made out for the interment of James Wilson Rogers and the body is laid away as that of James Wilson Rogers.

The person to whom the land was conveyed tries to sell it, and the wily lawyer finds John William Rogers reserved a life interest in the property, and there is nothing of record to show that he is dead. The owner of the realty is sure he is dead, but a search of the records shows that one James Wilson Rogers died in the city of Denver and that a burial permit was issued by the board of health of San Jose for the burial of James Wilson Rogers and the records of the cemetery show that James Wilson Rogers is buried in a certain lot and a certain grave, but James Wilson Rogers is not John William Rogers. Much trouble ensues, and perhaps long and expensive legal proceedings, and all because a mistake was made in a death certificate. It is apparent that vital and mortuary records must be kept with great care, or they become unreliable and perhaps actually harmful. These records being for the public—that is to say being public records—they cannot be altered except in accordance with certain statutes made and provided for such cases. The board of health has no right to change a record once it is made up, but it can be changed by the State Board of Health after ample documentary evidence has been submitted to the secretary of that body.

A certain house in San Jose having been used for a considerable length of time as a hospital and then abandoned, was found to contain the preserved remains of several prematurely born infants. The auctioneer who had been engaged to sell the house and its contents wanted to know what to do with the infants. He was directed to bury them, first having secured a proper burial permit from the registrar or subregistrar, namely, the assistant secretary of the board of health; but such a permit implied a death certificate signed by a legalized practitioner of medicine or the coroner. The auctioneer was quite certain he could not get a certificate from a physician, and to have the coroner hold an inquest on the infants would cost the county a hundred or a hundred and fifty dollars.

There was no other way to bury those wee specks of humanity without violating the letter of the law. To bury them without a permit would be committing a misdemeanor, punishable by fine or imprisonment. As an officer sworn to support the laws of the City of San Jose and of this state, I could not advise the auctioneer to dispose of the bodies in any other manner. For once I was like Desdemona, I perceived here a divided duty—one to the letter of the law and one to common sense. The law said "follow me"; common sense said "follow me and let the infants be buried in the backyard without a burial permit." What was done with those human remains I do not know and I do not want to know, but had I been the auctioneer I would have ignored the letter of the law.

Milk—Ordinance 1696 of the City of San Jose reads in part as follows:

"It shall be unlawful for any person to sell or offer for sale or to have in his possession for the purpose of sale within the City of San Jose any milk or cream without then and there holding a license in full force issued by the board of health of said city authorizing such sale. Said license shall not be issued except on the following expressed conditions to wit: That the person to whom the license is issued shall not himself or through the agency of any servant or employe sell or offer for sale or have in his possession for the purpose of sale milk or cream from any diseased cow or any cow fed in whole or in part on still slops or other food calculated to render the milk or cream of such cow unwholesome or unsuitable for human food; or milk or cream to which water or any foreign substance has been added or which contains less than 13 per cent of solids, one-fourth of which is butter fat.

"No license shall be issued authorizing the sale of milk or cream until the person applying for said license shall have filed with the secretary of the board of health a certificate of health, showing that the cows producing the milk to be offered for sale are free from tuberculosis and other dangerous, contagious and infectious diseases."

There are about one hundred and twenty people engaged in the sale of milk in San Jose. To keep all these people within the law is a very difficult task. It requires much time and forbearance, and sometimes a touch of force to hold all the sellers of milk up to within a stone's throw of the law. Of course, the board of health has no direct jurisdiction over the dairies located outside the city, but indirectly such dairies are subservient to the ordinance governing the sale of milk in this city, for the board of health may refuse to issue licenses to such dairymen as live outside the city until the quality of the milk offered for sale and the conditions under which the milk is produced are satisfactory to the board.

It is not always a simple matter to secure a fair sample of milk for examination. From the time the milk is poured into the can at the dairy until it is delivered to the consumer the cream is rising to the top of the milk. If the sample is taken from a full can, it is likely to contain too large a per cent of butter fat. If it is taken from a can from which most of the milk has been poured, the sample will contain less butter fat than the average of the full can because most of the butter fat will have been poured from the can with the cream. Some drivers are smart enough and mean enough to deceive the officer by having a can, which he pretends is empty but which in fact contains some cream. If the officer pours the contents of a can into the so-called empty can in order to mix it and then takes a sample he will be badly imposed upon. I have myself suffered such a fate.

The average per cent of butter fat found in 150 samples was 3 1-5%. Rarely a sample was found which yielded 4%. More frequently samples were tested which yielded only 2 2-5%. The samples from certain dairies were nearly always of the same quality as determined by percentage of butter fat. Some restaurants and at least one hotel were demanding cheap milk, and milk dealers were found who were willing to yield to their demands.

Some milk that cost the retailed 36 cents for three gallons was sold by him for 10 cents a gallon to those consumers who demanded cheap milk. Let us not be deceived; such retailers sold two gallons of milk for twenty cents, and added one gallon water for which they charged 10 cents more.

The retailer must have his profits and water is cheaper than milk. But milk that is sold for 10 cents a gallon looks pale—it is timid and lacks force and the restaurantkeeper goes to the drug store, and for a dollar gets enough golden milk coloring fluid to give an inviting color to barrels of pale milk. A few drops of this coloring fluid makes his milk have such a rich appearance that his customers are delighted with it. "Oh what fools we mortals be!"

The amount of cream is generally, if not always, determined by gravity. For such determination, I had glass tubes of three-fourths of an inch calibre, cut into pieces twelve inches in length. A quarter-inch scale was cut on the lower ten inches of each

of these pieces, so that ten inches of each contained forty marks one-fourth inch apart. Such a device is cheap and easily cleaned. When filled with milk up to the ten-inch mark and allowed to stand in a vertical position for twelve hours, it gives the percentage of cream in a very satisfactory manner; such a tube also shows the color of the milk and the amount of coarse dirt.

The amount of cream is often strangely out of keeping with the amount of butter fat. The average of fifty samples of milk gave 3 1-5% butter fat and 12% cream, but some samples contained 3 3-5% butter fat and less than 12% cream. Samples containing as little as 3% butter fat had as much as 17% cream, and in one instance a sample that had 4% butter fat had only 10% cream.

Can milkmen manufacture cream by adding a harmless thickener without increasing the cost of the product beyond what they can afford? Gelatine will give the desired result exactly, and it will not cost more than two cents per gallon. Pale-faced 10-cent milk can be thickened with gelatine and colored and sold for twenty cents a gallon at a profit of 7 or 8 cents. This is not only a possibility—it is actually done. Fortunately, gelatine is wholesome and little, if any, harm would follow its use as an adulterant, but its use is a deception and a violation of law. A very large number of objectionable substances are added to milk, either for coloring or preserving, but I cannot stop to consider them so I leave this subject for the consideration of food inspectors, suggesting to my hearers in passing that the volume of cream is not as true an index to the food value of milk as is the volume of butter fat. Much cream does not always mean much butter fat.

I need not remind you that there are several substances occasionally found in milk, which are more injurious to health than water, or gelatine, or coloring substances; one of these is the tubercle baccillus. During my incumbency of the health office in San Jose, an effort was made to prevent the introduction of this baccillus into the milk furnished to our people. To that end, I had about a thousand cows examined by licensed veterinarians for tuberculosis and other diseases. *Fourteen of every hundred cows thus examined were found to be tuberculosus.* All the cows in one or two herds of 15 or 18 were found to be free from this disease, while every cow in one herd of 14 was found to have it. At least 300 tuberculous cows in and about San Jose were being milked daily, and the milk delivered to consumers in that city. What disposition was made of those diseased cows, do you ask? Instructions were given for their immediate removal from the dairies and their milk was prohibited from San Jose, but a dairyman, whose entire herd of 14 cows is found to be diseased, can't be persuaded to kill all of his cows, thereby destroying all his invested capital and his entire income, and, under existing laws, the only thing I could do was to prohibit his milk. I believe every tubercular cow in California ought to be killed and deeply buried or cremated. Tuberculosis that kills more people every decade than war, famine and plagues put together will never be eradicated from our state until all the people are kept away from milk taken from tuberculous cows. Think of our children being fed milk, which comes from cows whose udders have many tubercles in them, some of which are alive with tubercle baccilli!

In conclusion, permit me to say that my experience has shown me that a city's milk will not be properly protected by a board of health that does nothing more than formulate rules and write letters to dairymen.

Every city should have an inspector for every 50 dairies. His work should begin when the dairyman purchases his cows, for no diseased cow should be allowed in a dairy and his duties will not have been discharged until he has compelled the retailers of milk to deliver it to consumers in sterile, well-stoppered, glass bottles.

Inspection and supervision and coercion are absolutely necessary to protection.

COMMON GASTRIC DISORDERS AMONG SCHOOL CHILDREN.

By ALFRED W. PERRY, M. D., San Francisco.

There are a host of serious gastric disorders which exist a long time unrecognized both by the patient and his physician, because they do not present the symptoms popularly believed to belong to them, viz., heartburn, sour liquid or gaseous eructations, vomiting, pressure-pain or tenderness at the epigastrium. I was once questioning a patient, who I was sure had a dilated stomach with stagnation and fermentation of its contents, if he ever had heartburn. He said no at first, and then said, occasionally, on stooping down. Now it is evident that in this case the cardiac sphincter of the stomach had sufficient tonicity to prevent the stomach contents being forced up into the throat until aided by the compression induced by stooping; so a decreasing tonicity of it allows successively heartburn, eructations and finally vomiting to take place, and conversely, an increased tonicity prevents these symptoms, in presence of a high degree of gastric fermentation. The feeling of weight or pain in the stomach caused by stagnation depends largely on the individual susceptibility, as also the pain of ulcer. Distension of the abdomen and the cardiac palpitation from the upward pressure of the diaphragm does not occur often in the young adult dyspeptics, and others with fairly developed abdominal walls.

For me the syndrome, of constipation, debility and loss of weight without fever or any weakening discharge, warrants in looking directly for a disorder of digestion.

In school children and young adults, especially clerks, I usually find this symptom group to indicate hyperchlorhydria, and I prove it sufficiently by their habits, to indicate a course of treatment; and

the usual results of the treatment confirm me in my diagnosis.

I found a great many children with the following history: They were perfectly well and properly developed for their ages until shortly after commencing school, when they showed the just-mentioned symptoms, with a poor appetite for breakfast. On analyzing their habits, I found that they ate their meals in a great hurry, in 5 or 10 minutes, perhaps. I tried to find out what this had to do with school life and this is the result: At different times during the past year, I stationed myself at the door of 3 large public schools (the Hamilton, the Emerson and the H. Durant) at 12:20 P. M., and counted the children returning from luncheon —a few children were already coming in, at 12:30 40% had returned, at 12:35 50% and at 12:40 75%—I counted over 700 children. This shows that the majority had remained at home to eat luncheon 10 or 12 minutes, allowing 10 minutes on the journey each way, and from this must be deducted a few minutes with some in waiting to be served.

The state law allows one hour for lunch, but the teachers require the pupils to return at 5 or 10 minutes before 1 P. M. The principal reason is that the children hurry back to play in the schoolyard, or gossip. The fast eating causes hyperchlorhydria, starchy indigestion, emaciation and anemia. The relation is as follows: Large pieces of food reaching the stomach stay therein a longer time than normal, as digestion takes place from the surface only of each piece; this longer stay in the stomach causes a continued secretion of gastric juice until the pieces of food are reduced to a size which will pass the pylorus; excessive liquids taken at meals dilute the gastric juice and still further prolong the stay of food in the stomach. This is stagnation and is the most serious derangement of the stomach, and is the most certain and frequent cause of constipation.

Pawlow found in his experiments on dogs with an accessory partitioned-off stomach, that gastric juice was secreted as long as food to be digested remained in the stomach; with large pieces of meat the juice was secreted the longest time.

Georges Hayem found in the stomachs of nurselings, one hour after taking milk, no free hydrochloric acid so rapidly had it combined with the finely divided milk. It has also been found that when a healthy man was given a meal of meat, finely chopped after cooking, that in one hour there was no free hydrochloric acid in the stomach.

How is it that natural gastric juice will irritate the walls of its proper container? We have some analogies to show it is possible: an infant is not excoriated by its urine if the napkin is changed soon; if allowed to remain all night many children are excoriated; frequent fecal passages irritate the anus of both infants and adults; incontinence of urine in adults (who have no trophic nerve change) often excoriates the skin. The gastric juice is extremely corrosive to living tissues, and the gastric lining has not an unlimited margin of resistance against these attacks when prolonged in time or altered in quality.

The cause being known, it would seem to be a simple task to remedy. But I have not found it so. The difficulties are: the intense desire of the child to play, which is not satisfied at home; for we are in the era of small families, which do not provide other playmates of the same family; the residence in flats and apartment-houses allows no suitable playground to meet the children of neighbors; the independent spirit of the children does not usually submit to parental control, as to the time of returning to school, or of the manner of eating or the kind of food. The directions I give to parents are, not to allow the children to return to school until 15 minutes of the legal school time (1 P. M.), and not to have water on the table and no soft breadstuffs of any kind. This advice is not usually followed unless the parents become alarmed as to the condition of their children.

Analysis of gastric contents is not available in diagnosis as the children do not seem sick enough for the parents to allow the use of the stomach tube. The prevalence of the same conditions in young clerks I attribute to the perpetuation of the bad habits acquired as school children and short time allowed for luncheon. Abandonment alone of fast eating, and all the helps to it, such as soft food, frequent drinks between the mouthsful of food, will usually entirely restore the health. Any and all fats are important adjuvants. The active malt preparations are also of great value in supplementing the defective action of the saliva on the breadstuffs. The good effects of the fats is an important point in favor of the diagnosis of hyperchlorhydria in this condition, as it is stated by all writers on gastric diseases that all fats decidedly reduce the acidity of the stomach and favor its evacuation into the intestines; the experience of all the old nations has established the use of fats with the starchy foods, viz., the bread and butter of Northern Europe, the olive oil and bread of Southern Europe, the ghee and rice of India.

In this condition it has long been known that peptonised milk, cream, olive oil, cod oil in emulsion and plain cod oil cause great improvement; the order in which I give them is that in which they are best tolerated by the stomach or the ideas of the patient; the good effects of cod oil in the anemia of children and youths was at first attributed to the iodine, and then to the small amount of extractives in it; later experience has shown that other fats, animal and vegetable, may fully replace it. The laity have come to know the good effects of the fats; I frequently have the parents of children ask if it is advisable to give oil to their children, or tell me they have been giving it. Many physicians are tempted on sight of an anemic child to order iron or bitter tonics; in my opinion, bitters are useless and iron preparations are positively injurious to the stomach.

PROGRESS OF PREVENTIVE MEDICINE.

By E. L. BLACKMUN, M. D., Stockton.

If we could measure the progress of the world, materially, in the development and advantages of steam, electricity, telephone and telegraphy and the mechanical appliances; sociologically in the great improvement in the conditions of life; intellectually in the diffusion of education; morally in a possibly higher standard of ethics, there is no one measure that would compare with the progress that has been made in preventive medicine. Nor that would compare in the alleviation of suffering, nor in producing social comfort and happiness to the state, families or individuals. In fact, without the progress that has been made in preventing diseases the world's progress of to-day would not be practical. For, with the intermingling of people, one with the other of countries, states and communities that this progress demands there could be nothing but a continual round of plague, pestilence and all kinds of communicable diseases. Indeed, such conditions did exist before the new conveniences of travel. For example, read the history of the plague and disease of London, which at that time could not be stamped out until the city was destroyed by fire.

Here is the greatest advancement of all the departments of medicine and is the secret of successful surgery. With the exception of quinine in malaria, anti-toxin in diphtheria and the hydrargyum and iodin compounds in lues, no great achievements have been made in the cure of diseases after once established.

For beyond these, where are our specific remedies? In our treatment of diseases, we have learned to let the disease take its course but to keep our patient, by a system of hygienic dietetics and a few nature aids from a scientific pharmacopeia, in the best possible condition to withstand the disease.

The beginning of what is known as preventive medicine was made about half a century ago, and was due largely to the revival of the study of micro-organisms, the discovery of which was made in the latter part of the seventeenth century. But their true relation to infectious diseases was not known until within the last three or four decades.

True that not all bacteria which we know exist as a causative factor in disease have been established and classified; however, a sufficient acquaintance with the biological activities of the uncellular micro-organism has been obtained to place modern hygiene in a prominence and importance now justly accorded to it. Through the study of bacteriology our knowledge of the causation, course and prevention of diseases is daily becoming more accurate, and it is needless to emphasize the importance of such knowledge in solving the many problems that present themselves to students of preventive medicine.

For example, the knowledge of the typhoid baccillus, its habitat and means of dissemination, places us in a position to so regulate our water and milk supply, to construct such a sewage system with disinfection of its contents as to make our large cities or other places where there is an assemblage of people, comparatively free from typhoid fever. The same praetically applies to cholera and other enteric diseases.

By the aid of the microscope the plasmodium malaria is found in the blood of man, and is traced to the stomach of the enopheles mosquito which has feasted on his infected blood. Here generative changes are seen to take place, ovules and spermoids are found, fecundation occurs and the fertilized body sporulating ruptures, and discharges thousands of sporozites into the body cavity of the mosquito. A great many of these sporozites collect in the salivary glands of the mosquito, from which man may again be infected. And from practical experiments, it is quite certain that this is the only source of the infection of man with malaria. Thus, by avoiding contact with the inoculated mosquito, he may escape from one of the most common of the world-wide diseases.

No longer is an individual condemned to death because another of his family is afflicted with tuberculosis, provided he observes all the measures known in preventing that disease.

The obscurity that formerly surrounded the etiology of the deadly yellow fever, and its geographical distribution, has been explained in the mosquito, principally the stegomyia fasciata, which serves as an intermedial host for the microzoon of yellow fever, and with this knowledge Major Gorgas has stamped out yellow fever in Havana, when up to the year 1900 the deaths from this disease for 150 years amounted to hundreds, and even thousands, annually. This has occurred in an opportune time, for now the Panama canal may be dug without the depredations of this disease. But with the canal completed an avenue would be opened for the introduction of the disease into Asia. That yellow fever has been unknown in Manila, China and Japan is due to the fact that commerce has been conducted via the ports of British Columbia, California and Chili, all of which lie without the yellow fever zone. But with the opening of the canal, new conditions will have been established. The infected stegomyia that were not able to stand a journey in the hold of vessels via the Horn, might then be able by the direct route to reach Asiatic ports, and there infect native coolies engaged in unloading vessels, when the local stegomyia might become infected to spread the disease soon beyond the control among a crowded people living in an insanitary condition in a climate favoring its maintenance. With our present knowledge, however, this possibility is unlikely to occur.

These illustrations indicate a few among the many in the progress of preventive medicine. We will mention only the jennerian system in the prevention of smallpox, which practically annihilated that disease, anti-toxin in diphtheria and other serums too numerous to mention, some of them successful in producing immunity for a definite period

of time. Also the work being done by Wright of London in the Opsonic theory of immunity.

The role that insects other than the mosquito have in disseminating diseases, such as the house fly in typhoid fever and other enteric diseases, the common bedbug and flea in plague, the tsetze fly in sleeping sickness, and others, we will not take time to mention, is an additional armamentarium in our work. Especially can a large number of the summer diarrheas of children and many intestinal troubles of adults be avoided if there were a better screening of the houses and by limiting the number of breeding places of flies, such as the back-door garbage can and the manure pile about the barn.

The medical profession has been the full source of the scientific authority upon which preventive medicine is based, but it has become so intimately associated with public affairs that it is now a part of the government, international, national and state, and is thus designated state preventive medicine.

The third International American Conference met in Rio de Janeiro in the summer of 1906, with a view to securing such hygienic and sanitary conditions of all seaport towns that all endemic diseases be exterminated.

The national government has long been active in the examination of all individuals contained in approaching vessels, and the quarantine and disinfection of such when found infected. It also has special schools of instruction in hygiene and sanitary science for her army and navy officers and for special officers in this department.

Each state in the union has its health officer and state secretaries. Our own state officials are yearly becoming more interested in its public health. We have now some very good laws. For example, we mention the following: Those which prohibit the manufacture and sale of adulterated or misbranded food, drugs and liquors, and the controlling of morphin, cocain and other narcotics and poisons.

Rules and regulations which are intended to prevent the pollution in any manner of water, whether contained in streams, wells or springs, that may be used for domestic purposes.

Acts controlling the sanitary conditions of dairies and construction of buildings. Acts demanding the quarantine of Asiatic cholera, yellow fever, typhus fever, plague, smallpox, scarlet fever, diphtheria, membranous croup, measles, leprosy, anthrox and glanders, the reporting of the Manila, Cuban, Philippine adobe or kangaroo itch, chickenpox, erysipelas, pneumonia, unicinariasis or hook worm, cerebro-spinal meningitis, trachoma, whooping cough, mumps, dengue, dysentery, tuberculosis of respiratory tract, typhoid fever and any disease that may become epidemic.

Another section of this act is that no instructor, teacher or pupil affected with any of this list of diseases or who resides in any house, building or structure or other place where such disease exists or has recently existed shall be permitted to attend school except by the written permission of the local health officer.

This is a very brief review of the progress and our present position in preventing diseases, but let us now consider their efficiency and present outlook. The laws that we have would offer very good control if they were enforced. Medical men have been the necessary organizers, and remain the natural counselors and directors of the system of health legislation. And this service has been largely a labor of love, which they have offered freely as a gift to the people.

There is a weakness, however, in that the labor has been individual rather than corporate, that there has been a lack of organization among the profession, both in causing the enactment of laws and applying the power of them after they are enacted.

Every county should have a health officer, who should be a physician, one who had made a special study of hygiene and sanitary conditions, with a familiarity with the trans-communicable diseases. He should be provided with a well-equipped laboratory, and be able to make bacteriological, pathological and chemical examinations as might be required of him. His duty would be to attend to the public health and act as a free consultant with the other local health officers and physicians of the county, and be in constant communication with the health officers of the state.

There should be more precaution in observing the law in children's diseases, especially when school is in session. Complete isolation and disinfection should be practised and for a sufficient period of time. Although measles, whooping cough and mumps are considered mild diseases, it is safe to say that more deaths result from any one of these diseases in one month than from smallpox in one year in the United States. The idea that children must have these diseases some time in their youth is folly in the extreme. With the instruction of parents of the seriousness of these diseases and with isolation of infected children and disinfection, these diseases can and will be stamped out. If at any time during the life of an individual his health should be guarded, it is during childhood, upon which the health of the adult depends.

In England they have become more strict in regard to communicable diseases. Among schools and colleges the following period of isolation must be observed—first, in respect to time after exposure:

Smallpox, 18 days.
Chickenpox, 18 days.
Scarlet fever, 14 days.
Diphtheria, 12 days.
Measles, 16 days.
Whooping Cough, 21 days.
Rothelm, 16 days.
Mumps, 24 days.

Second, The earliest day for lifting quarantine: Smallpox when all scabs have fallen off; chickenpox, when all scabs have fallen off; scarlet fever, 6 weeks, and then only if no desquamation; diphtheria 3 weeks if convalescence is complete and no sore throat, albuminuria or discharges remain, and no bacillus of diphtheria present; measles, 3 weeks

if all desquamation and cough have ceased. Whooping cough, 6 weeks from commencement of the whooping, if the characteristic spasmodic cough and whooping have ceased. Rothelm, 2 or 3 weeks, according to the nature of the case. Mumps, 4 weeks, if all swelling has subsided.

In diseases such as ophthalmia, impetigo, ringworm or scabies, exclusion is carried out until recovery is complete. Upon the introduction of these laws in London requiring notification of communicable diseases, the isolation of the patient and the disinfection of the house at the termination of the disease, a decrease of 30% in the death rate from zymotic diseases was noted in the first decade.

Beyond the diseases of children those which concern us the most in the San Joaquin Valley are pneumonia, tuberculosis and malaria.

The fact that pneumonia generally develops sporadically and that direct transmission from case to case is comparatively rare has made the attitude of the profession toward the control of this disease somewhat passive. True, that the immediate sources of infection are at present usually not discernible, yet we recognize and see more clearly, day by day, that in bacterial diseases those sick with infectious diseases constitute the supremely important sources of dissemination of those diseases. Therefore, in this disease we must use the general principles of preventive medicine by the disinfection of all sputum and possibly other excreta from the patient, also the fumigation of the sick room and articles contained therein. The latter is essential, for in pneumonia the sputum is so voluminous that it is almost impossible to prevent entirely the soiling of the room and articles contained in it. There are also reports from hospitals using ordinary precaution where epidemics of pneumonia have occurred by omitting this procedure, and the disease could not seemingly be stamped out until the ward was thoroughly disinfected. I need only to mention Tonopah and other epidemics in the west to emphasize the importance of more activity in preventing pneumonia.

In addition, the new section to the penal code, prohibiting the discharge of any mucus from nose or mouth, or expectorating upon any sidewalk, public street or highway, public building, railroad train, etc., will also be useful.

More important is the reporting of every case of pulmonary tuberculosis to the health officer whose duty it would be to attend to the disinfection of the house which contained the afflicted one upon his removal or death.

The duty of every physician is to arrive at an early diagnosis, making repeated microscopic examinations of sputum, and when the tubercular bacillus is found, show the same to the patient and let him estimate the number of germs in a drop of sputum. Inform him of the nature of the disease and how he may infect others, especially those of his own family, and then encourage the patient by telling him that if he will follow instructions he has a good chance of getting well. He will appreciate you the more for telling him the knowledge he is seeking, the cause of his trouble, and he will be in a better position by knowing how to serve himself and others.

In the long list of communicable diseases that is required to be quarantined or reported by the state, we find no mention of malaria. That malaria is prevalent in the San Joaquin Valley during the summer months is true. Happily it is usually of mild character, yet the money spent annually for the cure of this disease is considerable. The cost of time lost to labor, a few doses of quinine, and the trip to the mountains or coast, would soon make several fortunes. This fact, with the amount of suffering it entails in both the acute and chronic attacks, and our desire to make absolute denial that the disease exists in this vicinity, should be a great incentive to take steps in its prevention.

There are three well recognized courses now open to us in preventing this disease, namely:

1st. The extermination of the enopheles mosquito. 2d. The prevention of mosquitoes infecting man, and vice versa, by the use of mosquito-proof houses, and other measures. 3d. The systematic destruction of the parasite in man.

The first has been accomplished to some extent in our towns and cities by drainage for ordinary sanitary purposes, thus depriving the mosquitoes of their breeding places. But when water is used for irrigating purposes, this method is impracticable. Crude oil has been used successfully to destroy the larvæ in streams and other bodies of water, but this is not an economical procedure, when other objections are absent, such as interference with food and water supply of the people.

A large class of our people by necessity live in houses protected with screens which protect them from the mosquito in a large measure. However, a number of people during the hot summer months sleep in tents or in the open, with no protection whatever, and some, by the nature of their work, are more or less exposed, especially if they have night work, the mosquito being more active at night than during the day. It is among these classes that malarial fever most often exists.

Most of the laity and some of the physicians believe that malaria exists in the air or water, but when they can be convinced to the contrary and be made to see the role that the mosquito has in transmitting this disease, then there will be no trouble in the majority of the people avoiding the infected mosquito. This instruction must come from the state and the physicians.

The third course in preventing malaria is the most important, the destruction of the parasite in man. For this not only cures the patient but prevents the further infection of the enopheles mosquito, and with no infected mosquito, the source of supply would be cut off to man. The bite of the uninfected mosquito can not produce malaria.

A few doses of quinine and a trip to the coast do not always cure, but may leave a chronic condition with plenty of malarial parasites in the blood, left

over to infect the enopheles the following year. That the patient has no more chills and fever is no indication that he is rid of the disease, for it has been calculated that there must be at least 250,000,000 parasites present in the blood of patients to produce an attack of chills and fever. Just how long the parasites will remain in the system without producing untoward symtoms is not known, but that they do remain if not totally destroyed, and may produce a relapse, there is sufficient proof. This explains how malaria may occur in the winter months and in regions where there are no enopheles mosquitoes.

Dr. Albert Woldert, of Texas, advocates the following method of procedure, which, in part, has been used successfully by Koch on a large scale in Java and German New Guinea, also in German East Africa and Fernando in the malaria districts of Ceylon. Being a preventable and highly inoculable disease, boards of health should make it compulsory on the part of physicians to report all cases of malarial fever.

The laity must be educated so that each person who has malarial fever will fully understand just how he becomes a menace to his neighbors, and who by this means will not rebel against the restrictions imposed upon him. Health officers should insist that all instructions given by them be carried out to the letter. Proper penalties should be provided. Every case of malarial fever should be protected by means of a close-fitting mosquito netting, especially at night time. The enopheles seldom bites during the day time. In this way the malaria-carrying mosquito could not become infected and would be harmless. In the case of those who have the disease the parasite should be attacked by a systematic treatment of quinine, microscopic examinations of the blood should be made every week or two, and the quinine continued until all parasites are gone, or persist in giving a round of quinine once or twice a month for several months after chills and fever.

In this way these cases which now go through the winter and relapse will be prevented. A close surveillance should be kept over new arrivals from districts in which the disease prevails, in order that fresh importations may be prevented. This would necessarily place a great deal of labor and expense upon the state, but if by combating malarial fever by this or some better method, the disease could be stamped out of California, she would not be without her reward.

In conclusion, it is safe to infer that our work in preventive medicine is yet far from being accomplished, and I will only mention a few instances where the work is sadly in need:

The prevention of cancer, its source being yet unsolved, limiting the venereal diseases and insanity, all of which by reports are seemingly increasing in our country, and last, but not least, for the sake of suffering humanity, do set a limit to the self-diagnozing, self-prescribing and counter-prescribing of patent dope which floods our markets.

COOPER COLLEGE SCIENCE CLUB

The Diagnosis of Certain Forms of Appendicitis.

By S. HYMAN, M. D., San Francisco.

1. Acute perforative appendicitis with abscess and pus in the general peritoneal cavity, but no diffuse peritonitis. This is a form of appendicitis that I have seen diagnosed at operation over and over again, by men who are competent surgeons, as acute appendicitis with diffuse peritonitis.

Anatomically we have an acute, usually perforative appendicitis with a walled-off abscess, the rest of the belly being filled with a thin opaque pus which wells out when the abdomen is opened. The peritoneum covering the intestine and the parietes is smooth and glistening and shows nothing of an inflammatory nature. The parietal peritoneum, examined microscopically, shows very slight, if any, inflammatory changes. There is in no sense of the word a diffuse peritonitis. The pus smells of the products of b. colli and is frequently sterile in culture, and so far as my experience goes, is more often so than not. The organism most often recovered is b. colli. The reason for this exudation, I do not know, but it is evident, from the absence of reaction on the part of the peritoneum that it comes from the external surface, as it were, of the abscess-wall faster than it can be taken care of by the remaining healthy peritoneum.

Clinically, it differs from acute appendicitis with diffuse peritonitis in that there is little, if any, rigidity, spasm and tenderness away from the right iliac fossa and general symptoms of peritonitis; the facies, sweating, tongue, pulse and marked meteorism are wanting. The free fluid in the belly cavity can be easily recognized by attempting to elicit the usual signs of fluid; movable dullness, fluid wave may be present but is rarely so, and a distinct soft bulging to be felt by rectum and vagina. The real reason that this condition is not frequently diagnosed in cases when it is present is due to the fact that the physician examining the patient has neglected to look for the indicative signs.

The condition having been recognized, either clinically or at the operating-table, the surgeon should treat it accordingly. Remove the appendix, drain the abscess cavity and refrain from damaging good, healthy, normal peritoneum by sponging out this purulent fluid. The source of infection removed, the undamaged peritoneum will easily, and in my experience of over 700 cases of all forms of appendicitis, always take care of this fluid, provided it has not been damaged by surgical manipulation.

2. Acute appendicitis with portal thrombosis—3 cases—and diagnosed. All three cases were similar. There was a history of, and the signs of acute appendicitis, accompanied by chills, septic fever, an enlarged liver and jaundice. The jaundice differed from the slight icterus so commonly seen in cases of appendicitis in that there was a definite icteric coloring of the skin, as well as a yellow color of the conjunctivae. So far as I can recall, these are the only cases of appendicitis

I have seen with a definite history of shaking chills, occurring at irregular intervals. I have no records to bear me out in this statement, but so far as my memory serves me, it is correct. I can state positively, however, that these cases are the only ones in which there was, before operation, a definite chill while the patient was under observation in the hospital or at home. In the case diagnosed, there was also hepatic tenderness. Postmortem showed a mural thrombus of the purulent type in the portal vein and miliary liver abscesses. The mesenteriolum of the appendix was gangrenous, but the infection could not be traced anatomically from it to the portal thrombus. All these cases were fatal, with autopsy.

3. Acute appendicitis with abscess between the appendix and a cap of omentum—3 cases—of which the last two were diagnosed. This condition, I imagine, can be diagnosed only while the condition is simple, as what follows will show.

Anatomically, we have an appendix which does not dip into the pelvis, perforated near the tip; and the result—an abscess walled off from the general peritoneal cavity by a cap of omentum, much as a thimble fits the end of the finger.

Up to a certain stage, it is clear that the inflammatory process has not yet reached the parietal surface of the omentum, and, therefore, has not yet involved the peritoneum. From this it follows that there can be no adhesions between the omentum and the abdominal wall. We have, then, in the anatomical picture, a clearly logical explanation for our clinical signs. The patient presents with what is clearly acute appendicitis, showing, however, very little tenderness on pressure in the right iliac region, and almost no, if any, muscle spasm. The last case I examined had absolutely no muscle spasm, showing a perfectly free parietal peritoneum. In the region of the appendix is a definite, small mass, usually 5 to 8 c. m. in diameter, felt through the abdominal wall. This mass, within narrow limits, is freely movable. From what I said above, concerning the pathological anatomy, it is plain that the movable mass is the appendix, with its abscess and omental wall, which last, not being adherent to the parietes, allows free movement within certain limits. Palpation per rectum or vagina reveals no mass or other inflammatory sign.

If one is able to make the diagnosis of this condition he can give the family an extremely good prognosis as it is possible, as I did in my last case, to remove the appendix, and by resecting beyond the involved area, to remove the abscess in toto and close without drainage.

Although this form deserves no special place in our classification of appendicitis, still the fact that we can accurately diagnose the anatomical condition makes this worthy of note. I have never seen the diagnosis of this form mentioned in the literature, and as I have been able to diagnose the last two cases seen I thought it worth while to bring it to your notice.

Discussion.

Dr. Stillman: In regard to the first condition mentioned, the cases where there is a large collection in the pelvis and sometimes in both flanks, of sterile fluid without odor, the question comes up whether it should be left or whether it should be sponged out. It used to be washed out and later sponged out, and now the idea is to leave it alone. I am thoroughly in accord with that technic which interferes with the surface of the peritoneum, either visceral or parietal, as little as possible, but my experience covers a number of these cases, and I have seen a number in which this substance subsequently became septic. Whether sponging it will help or not is another thing. I prefer, however, in such cases, to sponge out this fluid, but with no unnecessary manipulation, and to close without drainage. I prefer not to add insult to injury of the peritoneum by using the drain. The only case where I put in a drain is where there has been an abscess and where there is a localized collection.

The second condition brought up of thrombus of the portal vein, I have never seen. I know that it is one of the complications. The third condition of abscess between the appendix and the cap of adherent omentum I have seen, and I congratulate the doctor on removing the abscess with the appendix and the surrounding omentum. I think that his observation in the matter of diagnosis is based on the teaching that visceral peritoneum is not sensitive even when inflamed, which I think is practically disproved by the teachings of somebody subsequent. These experiments under cocain anesthesia and cocain seem to have the effect, even taken by mouth, of destroying the sensibility of the visceral peritoneum, and when the same experiments are tried on animals without cocain, these animals have evinced the greatest pain when the visceral peritoneum was touched. I suppose that the doctor's point that no tenderness is found in these cases is due, not to the fact that the parietal peritoneum is not involved, but that these appendices are pretty well buried in a large mass of exudate and omentum. I have succeeded in doing the same thing in some chronic cases, chronic abscesses in old men where the omentum constituted a hard, immovable mass which even suggested malignancy, and in which I have succeeded in removing the hard, firmly-attached cicatricial omentum, together with the appendix. I think that if that can be done oftener, it would be all right. I question very much whether the circumstances generally will permit of this in acute cases, or of the removal of such a large abscess in toto, as Dr. Hymen succeeded in doing. Personally, in these cases, I prefer to evacute the abscess in the usual way, and then, if it be not too large, wash out its cavity and remove the appendix and injected omentum separately and use a drain.

Dr. Morton Gibbons reported a case of cirrhosis of the liver with the following history:

Patient, male; 55 years of age. Family history of heart disease, but long lived. Childhood history negative. Previous history, at 16 years of age had several attacks of appendicitis, peritonitis, and from that time was never robust. Always subject to discomfort in region of appendix, and digestion was easily deranged. Five years ago had acute attack of appendicitis, of a diffuse character. Operation was postponed until it became apparent that death would result without it. Laparotomy showed numerous adhesions in region of appendix and up the right side to the liver. Inflammation was external. The patient nearly died on the table, wound was not closed, but finally closed by granulation. Patient experienced a protracted convalescence. Since that time patient was a neurasthenic, subject to oc-

casional attacks of nervousness, with depression and distress referable to the heart. In these attacks he felt as though he were about to die. There was a constant discomfort in the right side, with several minor attacks of inflammation. This discomfort gradually grew less. On several occasions blood was passed in the urine and there were some emissions, blood-stained. A small uric acid stone was passed. The heart showed evidence of a mild myocarditis, there was a mitral stenotic murmur. The urine showed evidence of interstitial kidney changes. The prostate did not seem to be abnormal. Seven months ago, while in ordinary health, suddenly collapsed, and upon recovering sufficiently to visit the toilet passed per rectum a large amount of bright blood. (He gave a history of having had tarry stools for three or four days. There was evidence of blood in the stools for several days.

The patient made a slow recovery from this, gained weight and strength but was weaker and less robust than before the hemorrhage. Four months later, three months ago, patient overexerted himself and became excited during an argument and felt a sinking feeling similar to previous time. He finally fainted, and was later able to reach home by car. The following day, feeling much better, he ate a full meal and in a half hour was seized again with a great depression and quickly vomited bright red blood. During the following six hours he lost two quarts. The bowels later showed small tarry passages. Blood soon disappeared in the stools and the patient gained rapidly. In three months he gained more than thirty pounds, and felt in every way better than before the first hemorrhage. Examination had revealed from time to time slightly yellowish eye-balls, normal lungs, enlarged heart with mitral diastolic murmur, low specific gravity urine with a few casts and some pus cells. Liver smaller than normal and spleen extending 1½ inches beyond costal border. Abdominal wall was fat, abdomen was sensitive, though not markedly so in the right iliac region. On February 24th, 1908, patient had not been feeling well, having been confined to bed with a slight bronchitis, when the old feeling of prostration developed. Almost immediately he vomited a quart of blood, and a few minutes later the bowels moved, resulting in a tarry stool. During the next fifteen hours there were four vomiting spells and 2½ quarts of blood were voided. The bowels moved once again with 9 oz. of liquid blackish blood. Eighteen hours after the onset the patient complained of very severe abdominal pain and failed rapidly in strength, and died evidently of internal hemorrhage.

Dr. Walter Gibbons reported the following pathological findings in this case:

The patient was a well-developed man, well nourished, of 53 years. Face tinged slightly yellow. Livori over the back and buttocks. Scar over McBurney's point 5 inches long and half an inch wide. Muscle seems not to be united under the scar. Incision made in the median line from the supersternal notch to the symphysis pubis. The subcutaneous fat well developed about one-half inch thick over the abdomen. Muscular layer of abdomen well developed. Great amount of fat in the omentum. The loops of the bowels are distended with gas. The peritoneum is moist and glistening. No fluid in peritoneal cavity. The cecum is adherent at the side of the laparotomy wound. Lower border of liver extends to the sixth rib in the mammary line. The consistency very much increased. Pericardium contains about 1 oz. of slightly blood-stained fluid. The layers of the pericardium adherent by easily broken adhesions over the front and posterior portion of the heart. The parietal pericardium is slightly opaque and covered with fibrin. The heart is about 1½ normal size. The muscle, left side, is hypertrophied about 12 m., thick consistency, rather hard. Muscle on the right side slightly thickened and shows fatty infiltration toward the apex of the heart. Both auricles are slightly dilated and show post-mortem clots. Post-mortem clots in the pulmonary artery. Valves on the right side are apparently normal. Slight atheromatous thickening at the base of the aortic valve and small atheromatous patches at the beginning of the aorta. Mitral valves much thickened, hard in consistency, atheromatous at bases and the aortic opening is decidedly stenotic. Left plural cavity is empty, pleura is moist and glistening, no adhesions. Left lung normal in size, no scar at the apex. Upper lobe shows emphysema. The lower lobe consistency increased, cut surface shows hyperemia and oedema. Bronchi are filled with blood-tinged mucus. The right lung same condition. There are strong adhesions of the transverse colon, of the ascending colon, loops of the small bowels, to the abdominal wall, to the liver, to the omentum and to the stomach. One loop of the small bowel is adherent to the bladder. The spleen is enlarged, 16x9x5. The surface is steel-colored, the capsule is much thickened and the consistency increased. Cut surface is dark red. Malpighian bodies are very indefinite. Connective tissue markedly increased. Trabeculae are prominent. Left adrenal apparently normal. The capsule strips easily. Surface finely granular. Left kidney shows coarse fetal lobulations. Cut surface shows hyperemia. The cortex is narrow. The right kidney in the same condition, with the addition that the calixes are much dilated, the pyramids shortened almost even with the cortex. The pelvis of the kidney is markedly dilated toward the lower pole. The prostate is slightly enlarged, both lobes show a marked cystic condition, the cysts varying from minute size to that of a pea. They contain a choloid-like material. Mucous membrane of the bladder is thickened and hyperemic. Mucous membrane of the rectum is quite thick, very much congested, very dark red, dark brownish fluid blood in the rectum. Stomach is dilated. It contains about two liters of dark brown fluid blood. The mucous membrane is much thickened and shows marked passive congestion. Pylorus is slightly stenotic. No ulcerations, no tumors in the wall, no evidence of bleeding vessel. Aesophagus membrane very hyperemic, contains dark bloody fluid. Veins in the wall are very much dilated. No bleeding point detected. The liver is contracted to about ¾ normal size, very hard. The surface is coarsely granular, yellowish brown in color. Shows much increase in connective tissue. Cut surface shows the lobules to be almost entirely surrounded by pads of connective tissue, which separate the liver tissue into islands. The gall bladder is filled with a dark brown bile, the bile duct is open. Duodenum mucous membrane is hyperemic, filled with dark granular, partly digested blood. The mucous membrane of the ilium is filled with fluid like blood. The mucous membrane is thickened and contains numerous small hemorrhages. The appendix has been removed.

Anatomical Diagnosis: Old laparotomy wound. Adhesions of the ascending and transverse colon, with the omentum, liver, stomach and small bowels. Loop of the small bowels adherent to bladder. Annular cirrhosis of the liver. Chronic spenitis. Granular atrophy of the kidney. Old adhesive pericarditis mitral stenosis. Hypertrophy of the left ventricle. Atheroma of the aorta. Fatty infiltration of the right ventricle. Chronic hemorrhagic mastitis and colitis. Passive congestion of the intestines. Cyst adenoma of the prostate. Vericosity of the veins of the aesophagus.

Microscopical Findings: Heart muscle. Left side muscle cells show hypertrophy. Right side muscle cells atrophied, some fatty droplets between muscle cells under pericardium. Liver. The peri-

portal connective tissue is markedly increased so as to form thick bands, which entirely wall off the liver lobules. The connective tissue is quite cellular, infiltrated with lymphocyles and new-formed connective tissue cells. It contains numerous new-formed bile ducts and veins with thick walls. The liver cells show atrophy near the periphery of the lobules, but toward the center they are markedly hypertrophied. There are numerous fat droplets in liver cells within centers and periphery of lobules. Kidney. Considerable diffuse increase in connective tissue under the capsule, which is thickened, are small areas in which the connective tissue is much increased, the tubules atrophied and in which the glomerulae show byaline degeneration and the arteries are sclerotic. The tissues between these areas are comparatively normal. Another section of kidney shows the same condition but less marked. Spleen. This shows a marked thickening of the capsule and trabeculae and sclerosis of the arteries, and the pulp is markedly indurated with new-formed connective tissue. The venous sinuses are engorged with blood and the Malpighian bodies small. Prostate, shows a marked dilatation of the glands into the small cysts with very irregular walls, which are lined with one row of low epithelial cells and filled with a homogeneous substance, which stains deep purple with hemotoxyln and light brown with Van Gieson.

The autopsy findings of this case of severe cirrhosis of the liver, with its sequelae, are of interest taken in conjunction with the history and the fact that they developed in a man of exemplary habits, who did not use alcohol, was very careful in his diet, had no syphilitic history and no history of the use of drugs, or of poisoning by lead nor of gout, which are commonly considered the causes of cirrhosis. This seems to be a case which is caused directly from disorder of the intestinal tract. The history of appendicitis followed by a subacute peritonitis, with marked intestinal disorders following, due probably to the adhesions of the intestinal tract with their consequent inability to perform their function properly, seem to be sufficient causes for the symptoms produced. It has been found experimentally that acetic acid, lactic and buteric acids injected into animals will set up a cirrhosis of the liver. It would appear, therefore, that alcohol in itself may not necessarily be the cause of cirrhosis of the liver, and probably the effect of alcohol to derange the digestion in the intestines with the effect that toxic substances are produced directly causes the cirrhosis of the liver. The history of hemorrhages in this case is interesting when it is considered that no definite point of bleeding could be made out at autopsy. It seems to be one of those cases of arenchymatous intestinal hemorrhage described by Reichard, in which the bleeding takes place from a large blood vessel or there is an oozing from a part or the whole of the intestinal tract due to impeded circulation through the liver.

Discussion.

Dr. Hirschfelder: This is a very interesting case, not only from the clinical but also from the pathological side. The etiology of cirrhosis of the liver is a long-disputed point. It is a matter of doubt whether the alcohol or the other ingredients of alcoholic drinks are the real cause of cirrhosis. On the other hand, pepper and other spices, as well as the various products of intestinal decomposition, may give rise to the disease. The fact that a man has not admitted to the use of alcohol would not prove that the cirrhosis was not due to alcohol because much would depend upon the condition of the stomach when the alcohol reached it. A man might take a small quantity of alcohol in the shape of a cocktail on an empty stomach and do the mischief. Or he might take a great deal of alcohol only once, and thus have cirrhosis of the liver. The next point of interest is the intestinal hemorrhage. It is quite probable that in this case the venous stasis produced by the mitral stenosis was added to that occasioned in the intestinal tract by the cirrhosis of the liver. It is very difficult for us to form a picture from post-mortem examination of what takes place during life. I do not suppose any of us have imagination sufficient to picture the intestinal tract in cases of cirrhosis of the liver. I am sure I cannot call up any picture which corresponds to the facts. I have no doubt there is congestion of the tissues, which is greater than we think probable and that under such conditions hemorrhage similar to that of nosebleed may occur.

Dr. I. W. Thorne: The production of cirrhosis of the liver in non-alcoholic men I know to be a fact, for I have seen several non-alcoholics who have lived the so-called ideal life with one exception and that is that they were inordinate eaters. They did not drink, but they would eat whenever they could. I really think that the overuse of food has just as much to do with cirrhotic liver as any other etiologic factor. These men in the country who do not go to town for more than once in three or four months make it a habit of having immensely abundant tables at their homes, and when they come to town the first place they go is to a good restaurant. I remember two cases who had practically the same history as these cases, both having had hemorrhages and both having had cirrhosis of the liver and dying.

Dr. Morton Gibbons: An interesting point in this case was in trying to foretell these hemorrhages. After he had had two hemorrhages, I realized that one of them would probably be the last. Before the time of the first hemorrhage he had been in the country traveling on business. He noticed that while feeling well, for two or three days before the attack there was an oily taste in the mouth and slight gastric discomfort. Probably there was some hemorrhage going on at that time. Before the second attack he fainted in his office and was taken home. It was twenty-four hours before the hemorrhage was manifest. Before the third attack he was sick in bed with bronchitis for three days before the hemorrhage. Twenty-four hours before the hemorrhage he had this same sinking feeling. The blood in the passages stopped very quickly after the first two hemorrhages. All occult blood was absent in three or four days. I did not make any tests, although I believe there must have been blood there before the hemorrhage became visible.

ADDITION TO NEW REMEDIES.

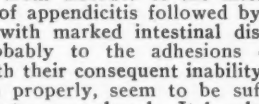
The following article was added to the list of new and non-official remedies approved by the Council on Pharmacy and Chemistry:

Dry Peptonoids (Soluble). Arlington Chem. Co.

NEW AND NON-OFFICIAL REMEDIES.

(Continued from May.)

THEOBROMINE.



Theobromine, $C_7H_8O_2N_4$, is a base occurring in Theobroma cacao, Kola acuminata, etc., and also made synthetically.

Actions and Uses.—Its uses are similar to caffeine, but it has relatively greater diuretic, cardiac and muscular activity. It does not act so powerfully on the central nervous system. It is recommended as a diuretic. The great obstacle to its use has been its insolubility and the consequent uncertainty of the degree of its absorption. It is liable to produce gastric disturbances. Dosage.—0.35 to 0.5 Gm. (5 to 8 grains).

THEOBROMINE SODIUM SALICYLATE.

Theobromine sodium salicylate, $NaC_7H_7N_4O_2 + NaC_7H_5O_3$, is a double salt of theobromine-sodium and sodium salicylate.

Actions and Uses.—Its effects are the same as those of theobromine (which see), over which it has the advantage of greater solubility. Dosage.—1 Gm. (15 grains) five or six times a day. Its tendency to produce gastric irritation may be prevented by giving it in well-diluted solution, or, if preferred, in capsules or wafers, followed by water.

THEOCIN.

A name applied to synthetic theophyllin (see Theophyllin). Manufactured by Farbenfabriken, vorm. Friedr. Bayer & Co., Elberfeld, Germany (Continental Color & Chemical Co., New York).

THEOPHYLLIN.

Theophyllin, $\begin{matrix} N(CH_3).CO.C.NH. \\ | \quad\quad || \\ CO.N(CH_3).C.N: \end{matrix} CH = C_7H_8C_2N_4$,

is an organic base isomeric with theobromine; it is found in small amounts in tea and is also made synthetically.

Actions and Uses.—Theophyllin is a powerful diuretic, claimed to surpass all other remedies of this kind, increasing not only the amount of liquid, but the solids in the urine as well, the secretion of urine being sometimes very copious. The diuretic effect, however, is not prolonged and its administration is, therefore, advantageously followed by one of the theobromine derivatives having a weaker, but more persistent, action. It occasionally produces gastric disturbances and renal irritation has also been reported. It is claimed that these may be obviated by the use of acettheocin-sodium (which see) instead. It is recommended in cardiac affections, nephritis, dropsy, etc. Dosage.—0.2 to 0.35 Gm. (3 to 5 grains) in warm tea.

THERMODIN.

Thermodin, $C_6H_4(OC_2H_5).(N(COOC_2H_5)\ (CH_3CO) = C_{12}H_{17}O_4N$, is a compound of acetphenetidin (phenacetin) and ethyl carbamate (urethane).

Actions and Uses.—Thermodin is an analgesic, antipyretic and antiseptic. It is recommended as a mild and reliable antipyretic in typhoid fever, pneumonia, influenza, tuberculosis and febrile conditions in general, and is said to be free from unpleasant by-effects. Dosage.—0.3 to 0.6 Gm. (5 to 10 grains) as an antipyretic; 1 to 1.3 Gm. (15 to 20 grains) as an analgesic. Manufactured by E. Merck, Darmstadt (Merck & Co., New York).

THIOCOL.

Thiocol, $C_6H_3(OH)\ (OCH_3)\ (KSO_3)\ 1:2:6 = C_7H_7O_5KS$, is the potassium salt of ortho-guaiacol sulphonic acid.

Actions and Uses.—Thiocol is said to be non-irritating to the mucous membranes of the digestive tract, readily absorbed and is claimed to promote appetite and improve nutrition. It is recommended in pulmonary tuberculosis, acute and chronic bronchitis, pneumonia, whooping cough, emphysema of the lungs, etc., as a means of relieving expectoration, diminishing night sweats and improving nutrition. Dosage.—0.3 to 1.3 Gm. (5 to 20 grains), in solution with orange syrup or in tablets. Manufactured by F. Hoffmann-LaRoche & Cie, Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York).

TONOLS.

Tonol is a name applied by E. Schering to identify the glycerophosphates of his manufacture.

Action, Uses and Dosage.—These are described under glycerophosphates (which see). Manufactured by Chemische Fabrik auf Actien, vorm. E. Schering, Berlin (Schering & Glatz, New York).

THIOSINAMINE.

Thiosinamine, $(NH_2).CS.NHCH_2CH:CH_2 = C_4H_8N_2S$, is a condensation product of allyl thiocyanate and ammonia.

Actions and Uses.—Thiosinamine appears to cause or quicken the absorption of exudates, lymphatic swellings, scar tissue, etc., the action being unexplained. The opinions as to value are contradictory. It is recommended for use by hypodermic injection in lupus, chronic glandular tumors, cicatrices, etc. By the mouth in stricture, corneal opacity, chronic deafness. Dosage.—0.03 to 0.1 Gm. (½ to 1½ grains) in capsules or tablet triturates; in subcutaneous injections, 0.05 to 0.2 Gm. (1 to 5 grains) in 15 per cent alcoholic or 10 per cent glycerinated water solution.

TRIFERRIN.

Triferrin is ferric paranucleinate; a compound of caseinparanucleinic acid with iron, containing 22 per cent of iron, 9 per cent of nitrogen and 2.5 per cent of phosphorus in natural (organic) combination.

Actions and Uses.—In addition to its hematinic action derived from the iron, it is claimed to act like lecithin by reason of the phosphorus in organic combination which it contains. It is said to agree with the most sensitive stomach, since it passes the stomach unchanged, but is freely absorbed in the intestines. It is recommended in anemia, chlorosis, neurasthenia, rachitis and general debility. Dosage.—0.3 Gm. (5 grains) in powder, taken during meals. Manufactured by Knoll & Co., Ludwigshafen a. Rh. and New York.

TRIFERROL.

Triferrol is an elixir of triferrin, containing 0.06 Gm. (1 grain) triferrin and about 1 Cc. (15 minims) of alcohol in 4 Cc. (1 fluidram).

Actions and Uses.—It is introduced as a convenient substitute for triferrin. Dosage.—16 Cc. (4 fluidrams) corresponding to 0.24 Gm. (4 grains) of the powder. Manufactured by Knoll & Co. Ludwigshafen a. Rh. and New York.

TRIKRESOL.

A liquid said to consist of 35 per cent orthocresol, 40 per cent metacresol and 25 per cent paracresol. It closely corresponds to Cresol, U. S. P. Manufactured by the Chemische Fabrik auf Actien, vorm. E. Elberfeld, Germany (Continental Color & Chemical Co., New York).

TRIONAL.

A name applied to Sulphonethylmethanum, U. S. P. Manufactured by Farbenfabriken, vorm. Friedr. Bayer & Co., Elberfeld, Germany (Continental Color & Chemical Co., New York).

TRIOXYMETHYLENE.

Trioxymethylene, $(CH_2O)\ x$, is a polymeric condensation of formaldehyde.

Actions and Uses.—Antiseptic and escharotic. It is recommended internally for diarrhea. Externally it is used chiefly to generate formaldehyde by heating, for disinfection, for inhalations in phthisis and coryza. It is also recommended for warts. Dosage.—Internally, 0.3 to 1 Gm. (5 to 15 grains); externally (for warts), in 10 per cent suspension in collodion. Manufactured by E. Merck, Darmstadt (Merck & Co., New York).

TRITIPALM.

A fluid extract, each 4 Cc. (one fluidram) of which is said to represent: Fresh saw palmetto 2 Gm. (30 grains) and triticum repens 4 Gm. (60 grains) in a menstruum containing 20 per cent of alcohol. Dosage.—4 to 8 Cc. (1 to 2 fluidrams) four times a day, preferably with water. Prepared by F. Stearns & Co., Detroit, Mich.

CHANGE OF ADDRESS.

Armstrong, Jno. M., from 416 Byrne Blk., to 2915 Pasadena ave., Los Angeles.

Allen, Chas. L., from 25 Euclid ave., Pasadena, to San Fernando Bldg., Los Angeles.

Brown, Newell, J., Jr., from 131 West 22d st., Los

Angeles, to Stagg, P. O. Box 14, San Bernardino Co., Cal.

Brown, Newbern, N., from 131 22d st., Los Angeles, to Bakersfield, Kern Co.

Barber, David C., from 253 Broadway, Los Angeles, to Security Bldg., Los Angeles.

Barlow, W. Jarvis, from 328 Wilcox Bldg., to Security Bldg., Los Angeles.

Beckett, Wesley W., from Conservative Life Bldg., to Pacific Mutual Bldg., Los Angeles.

Bewley, Marietta H., from 916-17 Union Trust Bldg., to Auditorium Bldg., Los Angeles.

Brainerd, Henry G., from Conservative Life Bldg., to Pacific Mutual Bldg., Los Angeles.

Bresee, Paul, from Conservative Life Bldg., to Lissner Bldg., Los Angeles.

Berry, Andrew J., from Copp Bldg., Los Angeles, to Bumiller Bldg., Los Angeles.

Barton, H. P., from 1301 So. Hope, to 447 So. Olive st., Los Angeles.

Bennett, Laura B., from San Pedro, to W. H. Hellman Bldg., Los Angeles.

Bridge, Norman, from 217 So. Broadway, to Auditorium Bldg., Los Angeles.

Clark, Royal F., from Byrne Bldg., to San Fernando Bldg., Los Angeles.

Colburn, John R., from 515 Huntington Bldg., to Delta Bldg., Los Angeles.

Cowles, J. E., from Wilcox Bldg., to Los Angeles Trust Bldg., Los Angeles.

Colliver, John Adams, from Bradbury Blk., to Laughlin Bldg., Los Angeles.

Chamberlain, H. H., from County Hospital, to Coulter Bldg., Los Angeles.

Edwards, Wm. A., from H. W. Hellman Bldg., to Security Bldg., Los Angeles.

Garcelon, Harris, from 229 No. Grand ave., to Douglass Bldg., Los Angeles.

Gerson, T. Percival, from W. H. Hellman Bldg., to 639 Westlake ave., Los Angeles.

Godin, A. F., from Potomac Bldg., to Auditorium Bldg., Los Angeles.

Gwaltney, Sylvester, from Mason Bldg., to Grosse Bldg., Los Angeles.

Hale, Geo. V., from Burbank, Cal., to Artesia, Cal. (temporarily).

Hagadorn, Jesse L., from Copp Bldg., to Bumiller Bldg., Los Angeles.

Huff, Lucius J., from Union Trust Bldg., to Auditorium Bldg., Los Angeles.

Kirkpatrick, J. L., from 114 So. Spring st., to Bumiller Bldg., Los Angeles.

Lund, Geo. J., from Trust Bldg., to Auditorium Bldg., Los Angeles.

MacGowan, Granville, from Merchants Bldg., Los Angeles, to Lissner Bldg., Los Angeles.

Martindale, Jno. H., from Johnson Bldg., to Auditorium Bldg., Los Angeles.

Mattison, Fitch C. E., from Stowell Bldg., to Chamber of Commerce, Pasadena.

Mattison, S. J., from Stowell Bldg., to St. Louis Bldg., Pasadena.

Noble, Mary L., from 319 Grant Bldg., to Auditorium Bldg., Los Angeles.

Nixon, Anne W., from 516 E. 7th st., Stirling, Ill., to 936 Gratton st., Los Angeles.

Petter, Reginald S., from 1201 Central ave., to 853 Central ave., Los Angeles.

Oldham, Jno. Y., from Grant Bldg., to Ocean Park, Los Angeles.

Quint, Sumner, J., from Potomac Bldg., to Coulter Bldg., Los Angeles.

Rosenberger, J. A., from Sanger, Cal., to Byrne Bldg., Los Angeles.

Rogers, A. C., from Bryson Bldg., to Security Bldg., Los Angeles.

Shurtleff, Fred C., from Johnson Bldg., to Auditorium Bldg., Los Angeles.

Smith, Bertnard, from I. W. Hellman Bldg., to Security Bldg., Los Angeles.

Smalley, Clifford A., from 1024 W. 23d st., to 1000 W. 23d st., Los Angeles.

Speicher, A. F., from 3005 Vermont ave., to Coulter Bldg., Los Angeles.

Stevens, Geo. M., from 1426 West 24th st., to 2405 So. Hoover st., Los Angeles.

Sherk, Henry H., from Slavin Bldg., Pasadena, to 268 So. Orange ave., Pasadena.

Turner, Wm. D., from 332 N. Raymond, Pasadena, to Stanton Bldg., Pasadena.

Walwrath, G. B., from Copp Bldg., Los Angeles, to Security Bldg., Los Angeles.

Wilson, Andrew P., from 1824 Central ave., Los Angeles, to Lissner Bldg., Los Angeles.

Wier, Francis A., from 201 N. Madison ave., Pasadena, to 550 E. Walnut, Pasadena.

Wilson, J. M., from 1242 E. Colorado st., Pasadena, to 56 N. Euclid ave., Pasadena.

Beckingsdale, D. L., from Fort Mason, San Francisco, to S. S. "City of Panama," care of Pacific Mail Steamship Company, San Francisco.

Burrows, Fred G., from 1800 Sutter st., to Union Square Building, 350 Post st., San Francisco.

Deane, Louis C., from 2502 Washington st., to Union Square Bldg., 350 Post st., San Francisco.

Franklin, W. Scott, from S. W. cor. Sutter and Polk sts., to Butler Bldg., Geary and Stockton sts., San Francisco.

Johnson, Albert W., from 710 14th st., to 2095 Market st., San Francisco.

Kirk, Albert W., from 2127 Fillmore st., to Monadnock Bldg., 681 Market st., San Francisco.

Knorp, Francis Frederick, from 3009 Sacramento st., to Butler Bldg., Stockton and Geary sts., San Francisco.

Levison, Chas. G., from 2420 Pacific ave., to Union Square Bldg., 350 Post st., San Francisco.

McReynolds, R. P., from 219 N. Grand ave., Los Angeles, to Coulter Bldg., Los Angeles.

Madden, Thos. F., from Sanger, Fresno Co., to Millwood, Fresno Co.

Clark, D. A., from Santa Barbara County, to Middletown, Lake Co., P. O. Box 5.

Rookledge, P. L., from Cambria, to San Luis Obispo, Cal.

Lindsay, Wm. K., from 1029 2d st., Sacramento, to 706½ K st., Sacramento.

Deaths.

Los Angeles Co.—**Tanner, J. B.; Day, B. W.;** Long Beach, **Porter, Chas. S.**

San Francisco.—Conrad, Thos.

Dropped.

Los Angeles Co.—Chase, R. E.; Dickinson, D. K.; Freeman, E. M.; Hall, J. S.; Mathias, E. N.; Reynolds, F. W.; Rendon, V. A.; Sexton, C. L.

Resigned.

Los Angeles Co.—Keyes, Henry S.; **Sleeper, K. R.** (transferred from Los Angeles Co. to Riverside Co.); Stokes, W. H.; **Brown, Newbern N.** (transferred from Los Angeles Co. to Kern Co.); Rankin, Caroline W.

New Members.

Anton, Francis L., Pacific Mutual Bldg., Los Angeles.

Bancroft, Irving R., Byrne Bldg., Los Angeles.

Sherer, Wm. W., Lissner Bldg., Los Angeles.

Scott, Alf. J., 119 So. Fremont ave., Los Angeles.

Sundin, P. O., 1516 Girard st., Los Angeles.

McCarthy, Isaac A., Union Trust Bldg., Los Angeles.

French, J. Rollin, 526 S. St. Louis st., Los Angeles.

Van Meter, S. Y., 101 East Ave. 57, Los Angeles.

Lissner, Henry H., Lissner Bldg., Los Angeles (transferred from San Francisco County).

Delinquent.

Anderson, Helen O.—Gone to Europe.

Ross, R. O.—Removed; address unknown.

BOARD OF EXAMINERS, APRIL SESSION.

Passed.

School of Medicine.	Date of Graduation.	Percentage.
Cal. Med. (Ecl.) Coll., S. F., Cal	5, 20, 02	75.7
Coll. of P. & S., Los Angeles, Cal	6, 18, 07	78.3*
Coll. of P. & S., S. F., Cal	6, 6, 07	78.6
Coll. of P. & S., S. F., Cal	6, 25, 02	75.2
Cooper Med. Coll., S. F., Cal	5, 8, 07	79.
Cooper Med. Coll., S. F., Cal	5, 8, 07	(Condition in Aug. Ex. removed)
Univ. of Cal., S. F., Cal	5, 14, 07	81.4
Univ. of Cal., S. F., Cal	5, 14, 07	79.2
Univ. of So. Cal., L. A., Cal	6, 14, 06	82.5
Univ. of So. Cal., L. A., Cal	6, 13, 07	80.
Univ. of So. Cal., L. A., Cal	–, –, 07	76. *
Bowdoin Med. Coll., Me	6, –, 95	83.3 plus 5=88.3
Coll. of P. & S., Ill	6, 4, 07	81.1*
Coll. of P. & S., Ill	6, 15, 06	78.4*
Coll. of P. & S., Ill	6, 4, 07	75. *
Coll. of P. & S., Columbia Univ., N. Y	6, 13, 00	80.4
Detroit Coll. of Med., Mich	3, –, 78	77.1 plus 15=92.1
Eclec. Med. Inst., Ohio	6, 2, 91	78.1 plus 5=83.1
Georgetown Univ., Wash., D. C	–, –, 00	75.7*
Gross Med. Coll., Colo	4, 14, 91	76. plus 5=81.
Harvard Univ. Med. Coll., Mass	6, 27, 06	86.9
Kansas Med. Coll., Kans	3, 23, 92	75. plus 5=80.
Long Island Hosp. Coll., N. Y	6, 1, 05	80.8
McGill Univ., Montreal, Can	6, 13, 02	84.7
Med. Chirur., Phil., Pa	5, 28, 04	77.6
N. W. Univ., Ill	6, 16, 04	81.8
N. Y. Homeo. Med. Coll., N. Y	6, –, 02	80.8*
Omaha Med. Coll., Nebr	3, 21, 92	82.3 plus 5=87.3
Rush Med. Coll., Ill	6, 17, 03	75.
Univ. of Iowa	3, 17, 97	(Condition in Dec. Ex. removed)
Univ. of Mich	6, 18, 03	82.5
Univ. of Mo	4, 27, 97	74. plus 5=79.
Univ. of Penn., Pa	6, 13, 95	82. *
Univ. of Penn., Pa	5, 1, 90	79. plus 5=84.
Univ. of Toronto, Can	–, –, 07	77.7
Yale Med. School, Conn	6, –, 04	80.5

*On review of previous examinations these applicants have attained the necessary average.

Failed.

Coll. of P. & S., S. F	5, 17, 06	74.
Coll. of P. & S., S. F	6, 6, 07	73.7
Coll. of P. & S., S. F	5, 17, 06	71.8
Coll. of P. & S., S. F	5, 17, 06	68.2
Coll. of P. & S., S. F	6, 6, 07	66.4
Coll. of P. & S., S. F	7, 26, 02	61.6
Coll. of P. & S., S. F	6, 6, 07	53.4
Cooper Med. Coll., S. F., Cal	4, 28, 03	70.7
Cooper Med. Coll., S. F., Cal	5, 8, 07	70.
Cooper Med. Coll., S. F., Cal	5, 18, 07	69.9
Univ. of So. Cal., L. A., Cal	6, 13, 07	73.6
Univ. of So. Cal., L. A., Cal	9, 3, 04	71.2
Univ. of So. Cal., L. A., Cal	6, 12, 02	66.6
Barnes Med. Coll., Mo	5, 3, 04	68.9
Howard Univ., Wash., D. C	5, 17, 91	25.4 plus 5=30.4
Louisville Med. Coll., Ky	3, 25, 97	66.6 plus 5=71.6
Med. Coll. of Ohio	3, 1, 71	2.3 plus 15=17.3
Miami Med. Coll., Ohio	5, 6, 03	70.6
Nagasaki Med. Coll., Japan	11, 13, 02	20.8
Northern Inst. of Osteop., Minn	6, 1, 97	55.5 plus 5=60.5.
Univ. of Iowa	6, 12, 07	72.6
Univ. of Mich.	3, 6, 79	72.6 plus 10=82.6
Univ. of Mich.	6, 25, 91	71.3 plus 5=76.3
Univ. of Mich.	6, –, 92	69.3 plus 5=74.3

NEW LICENTIATES.

Adams, Chas. B.; Baker, Clark D.; Bucknam, Ralph W.; Conner, Ada S.; Conner, A. W.; French, J. R.; Graham, L. B.; Ham, J. G.; Hinman, C. J.; Hoffman, R. O.; Howell, Walter O.; Hunt, Helena A.; Hurst, J. H.; Johnson, P. V. K.; Johnston, Jas. H.; Jones, Carl P.; Keene, Walter P.; Knapp, Edw. V.; Lewis, W. J.; Loizleaux, Edw. S.; Melvin, J. T.; Myers, M. C.; Newman, H. P.; Owen, J. L.; Palmer, Chas. T.; Robinson, F. N.; Roeder, Geo.; Sawyer, W. A.; Sinclair, Rosa M.; Trout, F. M.; Walker, H.; Ward, Edgar K.; Warmer, Chas. A.; Webster, I. D.; Whedon, D. D.; Wortmann, H.